

05/31/2005 10725191.trn

Connecting via Winsock to STN

Welcome to STN International! Enter x:x

LOGINID:SSSPTA1626GMS

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * Welcome to STN International * * * * *

NEWS	1		Web Page URLs for STN Seminar Schedule - N. America
NEWS	2		"Ask CAS" for self-help around the clock
NEWS	3	FEB 25	CA/CAPLUS - Russian Agency for Patents and Trademarks (ROSPATENT) added to list of core patent offices covered
NEWS	4	FEB 28	PATDPAFULL - New display fields provide for legal status data from INPADOC
NEWS	5	FEB 28	BABS - Current-awareness alerts (SDIs) available
NEWS	6	FEB 28	MEDLINE/LMEDLINE reloaded
NEWS	7	MAR 02	GBFULL: New full-text patent database on STN
NEWS	8	MAR 03	REGISTRY/ZREGISTRY - Sequence annotations enhanced
NEWS	9	MAR 03	MEDLINE file segment of TOXCENTER reloaded
NEWS	10	MAR 22	KOREAPAT now updated monthly; patent information enhanced
NEWS	11	MAR 22	Original IDE display format returns to REGISTRY/ZREGISTRY
NEWS	12	MAR 22	PATDPASPC - New patent database available
NEWS	13	MAR 22	REGISTRY/ZREGISTRY enhanced with experimental property tags
NEWS	14	APR 04	EPFULL enhanced with additional patent information and new fields
NEWS	15	APR 04	EMBASE - Database reloaded and enhanced
NEWS	16	APR 18	New CAS Information Use Policies available online
NEWS	17	APR 25	Patent searching, including current-awareness alerts (SDIs), based on application date in CA/CAPLUS and USPATFULL/USPAT2 may be affected by a change in filing date for U.S. applications.
NEWS	18	APR 28	Improved searching of U.S. Patent Classifications for U.S. patent records in CA/CAPLUS
NEWS	19	MAY 23	GBFULL enhanced with patent drawing images
NEWS	20	MAY 23	REGISTRY has been enhanced with source information from CHEMCATS
NEWS	21	MAY 26	STN User Update to be held June 6 and June 7 at the SLA 2005 Annual Conference
NEWS EXPRESS			JANUARY 10 CURRENT WINDOWS VERSION IS V7.01a, CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP), AND CURRENT DISCOVER FILE IS DATED 10 JANUARY 2005
NEWS HOURS			STN Operating Hours Plus Help Desk Availability
NEWS INTER			General Internet Information
NEWS LOGIN			Welcome Banner and News Items
NEWS PHONE			Direct Dial and Telecommunication Network Access to STN
NEWS WWW			CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that specific topic.

All use of STN is subject to the provisions of the STN Customer agreement. Please note that this agreement limits use to scientific research. Use for software development or design or implementation of commercial gateways or other similar uses is prohibited and may result in loss of user privileges and other penalties.

* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 14:11:56 ON 31 MAY 2005

=>

Uploading

THIS COMMAND NOT AVAILABLE IN THE CURRENT FILE

Do you want to switch to the Registry File?

Choice (Y/n):

Switching to the Registry File...

Some commands only work in certain files. For example, the EXPAND command can only be used to look at the index in a file which has an index. Enter "HELP COMMANDS" at an arrow prompt (=>) for a list of commands which can be used in this file.

=> FILE REGISTRY

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

2.52

2.52

FILE 'REGISTRY' ENTERED AT 14:18:54 ON 31 MAY 2005

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2005 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 29 MAY 2005 HIGHEST RN 851364-46-0

DICTIONARY FILE UPDATES: 29 MAY 2005 HIGHEST RN 851364-46-0

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*

Crossover limits have been increased. See HELP CROSSOVER for details.

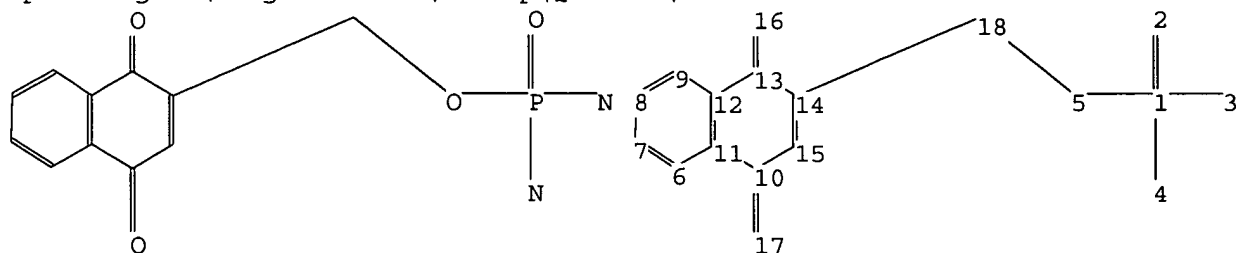
Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer

05/31/2005 10725191.trn

to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10725191.str



chain nodes :

1 2 3 4 5 16 17 18

ring nodes :

6 7 8 9 10 11 12 13 14 15

chain bonds :

1-2 1-3 1-4 1-5 5-18 10-17 13-16 14-18

ring bonds :

6-7 6-11 7-8 8-9 9-12 10-11 10-15 11-12 12-13 13-14 14-15

exact/norm bonds :

1-2 1-3 1-4 1-5 5-18 10-17 13-16

exact bonds :

10-11 10-15 12-13 13-14 14-15 14-18

normalized bonds :

6-7 6-11 7-8 8-9 9-12 11-12

isolated ring systems :

containing 6 :

Match level :

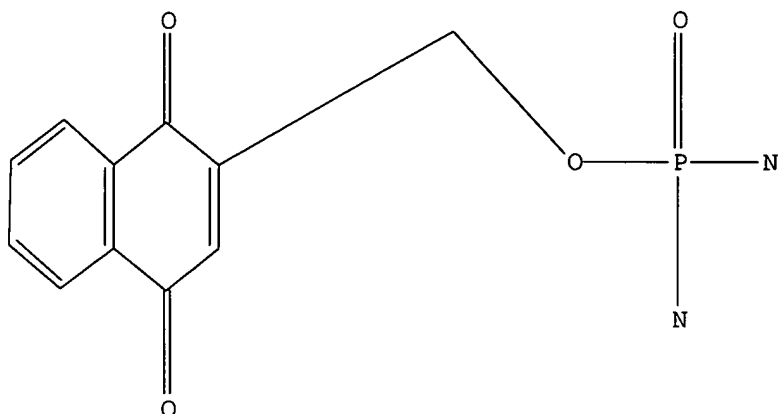
1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS 6:Atom 7:Atom 8:Atom 9:Atom
10:Atom 11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:CLASS 17:CLASS 18:CLASS

L1 STRUCTURE UPLOADED

=> D L1

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> S L1

SAMPLE SEARCH INITIATED 14:19:11 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 0 TO ITERATE

100.0% PROCESSED 0 ITERATIONS 0 ANSWERS
SEARCH TIME: 00.00.06

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 0 TO 0
PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1

=> S L1 SSS FULL

FULL SEARCH INITIATED 14:19:24 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 37 TO ITERATE

100.0% PROCESSED 37 ITERATIONS
SEARCH TIME: 00.00.01

10 ANSWERS

L3 10 SEA SSS FUL L1

=> FIL CAPLUS

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
161.33	163.85

FULL ESTIMATED COST

FILE 'CAPLUS' ENTERED AT 14:19:30 ON 31 MAY 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December

05/31/2005 10725191.trn

26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 31 May 2005 VOL 142 ISS 23
FILE LAST UPDATED: 30 May 2005 (20050530/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> S L3

L4

2 L3

=> d l4 ibib abs hitstr tot

L4 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:50656 CAPLUS

DOCUMENT NUMBER: 134:95489

TITLE: Phosphoramidate compounds, their preparation, pharmaceutical compositions containing them, and their use in the treatment of cancer

INVENTOR(S): Borch, Richard F.; Hernick, Marcy; Flader, Carolee

PATENT ASSIGNEE(S): Purdue Research Foundation, USA

SOURCE: PCT Int. Appl., 61 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001004130	A1	20010118	WO 2000-US19361	20000714
W: AE, AG, AL, AM, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CU, CZ, DE, DK, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2002008850	A1	20030109	US 2002-47465	20020114
US 6656926	B2	20031202		
US 20040176332	A1	20040909	US 2003-725191	20031201
PRIORITY APPLN. INFO.:			US 1999-143799P	P 19990714
			WO 2000-US19361	A1 20000714
			US 2002-47465	A1 20020114

OTHER SOURCE(S): MARPAT 134:95489

AB The invention provides compds. R1CH2OP(:O)(NRcRd)NRaRb [R1 = organic releasing group comprising quinone ring; Ra-Rd = H, C1-6 alkyl, CH2CH2X; X = halo, C1-6 alkylsulfonyl, halo(C1-6)alkylsulfonyl ((substituted)aryl)sulfonyl; provided that ≥2 of Ra-Rd are CH2CH2X], as well as pharmaceutical compns. comprising such compds. or

05/31/2005

10725191.trn

salts. The compds. are useful for treating cancer in animals. Preparation of the compds. of the invention is described.

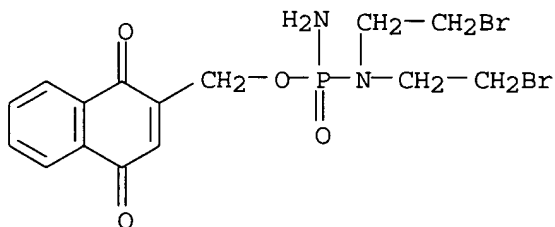
IT 289896-35-1P 289896-38-4P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(phosphoramidate compound preparation, pharmaceutical compns., and use in treatment of cancer)

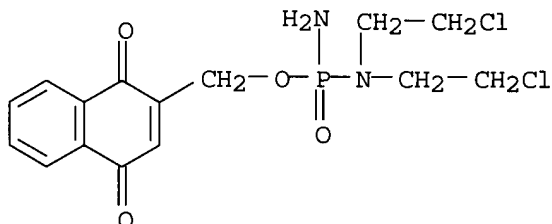
RN 289896-35-1 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-38-4 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



IT 289896-36-2P 289896-46-4P 289896-47-5P

289896-48-6P 289896-50-0P 289896-58-8P

289896-59-9P 289896-60-2P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

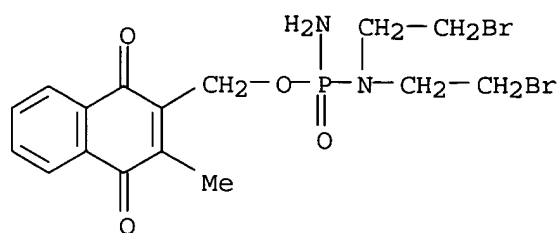
(phosphoramidate compound preparation, pharmaceutical compns., and use in treatment of cancer)

RN 289896-36-2 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

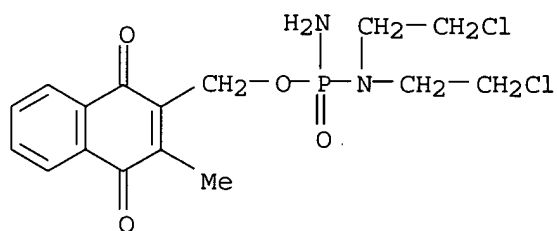
05/31/2005

10725191.trn



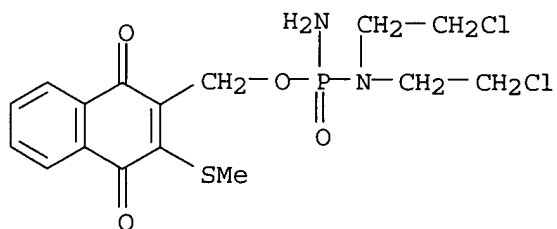
RN 289896-46-4 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



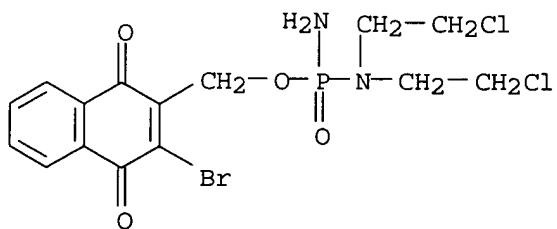
RN 289896-47-5 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, [1,4-dihydro-3-(methylthio)-1,4-dioxo-2-naphthalenyl]methyl ester (9CI) (CA INDEX NAME)



RN 289896-48-6 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (3-bromo-1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

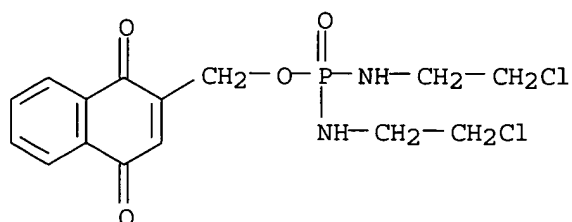


RN 289896-50-0 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

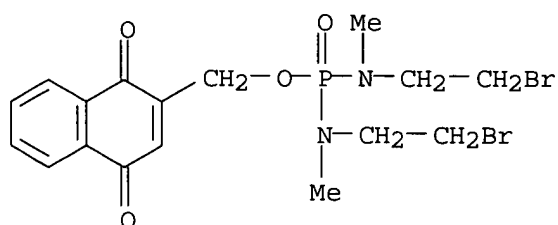
05/31/2005

10725191.trn



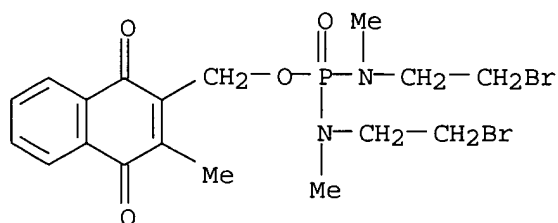
RN 289896-58-8 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-,
(1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



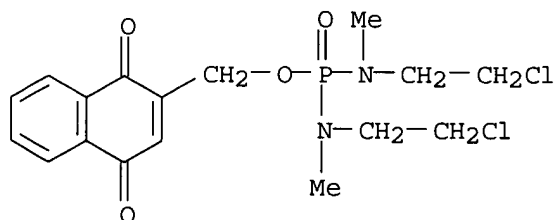
RN 289896-59-9 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-,
(1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA
INDEX NAME)



RN 289896-60-2 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-N,N'-dimethyl-,
(1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



REFERENCE COUNT:

6

THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:481806 CAPLUS

DOCUMENT NUMBER: 133:202587

TITLE: Development of Novel Quinone Phosphorodiamidate Prodrugs Targeted to DT-Diaphorase

AUTHOR(S): Flader, Carolee; Liu, Jiwen; Borch, Richard F.
CORPORATE SOURCE: Departments of Chemistry and Pharmacology, University of Rochester, Rochester, NY 14642, USA

SOURCE: Journal of Medicinal Chemistry (2000), 43(16), 3157-3167

CODEN: JMCMAR; ISSN: 0022-2623

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of naphthoquinone and benzimidazolequinone phosphorodiamidates has been synthesized and studied as potential cytotoxic prodrugs activated by DT-diaphorase. Reduction of the quinone moiety in the target compds. was expected to provide a pathway for expulsion of the phosphoramidate mustard alkylating agent. All of the compds. synthesized were excellent substrates for purified human DT-diaphorase ($k_{cat}/K_m = 3 \times 10^7 - 3 \times 10^8 \text{ M}^{-1} \text{ s}^{-1}$). The naphthoquinones were toxic to both HT-29 and BE human colon cancer cell lines in a clonogenic assay; however, cytotoxicity did not correlate with DT-diaphorase activity in these cell lines. The benzimidazolequinone analogs were 1-2 orders of magnitude less cytotoxic than the naphthoquinone analogs. Chemical reduction of the naphthoquinone led

to rapid expulsion of the phosphorodiamidate anion; in contrast, the benzimidazole reduction product was stable. Michael addition of glutathione and

other sulfur nucleophiles provides an alternate mechanism for activation of the naphthoquinone phosphorodiamidates, and this mechanism may contribute to the cytotoxicity of these compds.

IT 289896-35-1P 289896-36-2P 289896-38-4P

289896-46-4P 289896-47-5P 289896-48-6P

289896-50-0P 289896-58-8P 289896-59-9P

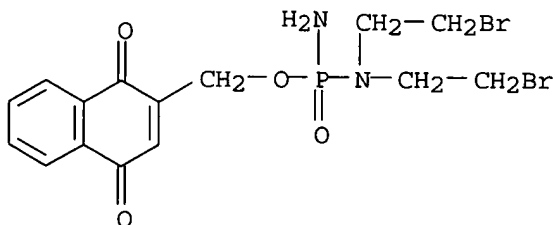
289896-60-2P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation and antitumor structure-activity relations of novel quinone phosphorodiamidate prodrugs targeted to DT-diaphorase)

RN 289896-35-1 CAPLUS

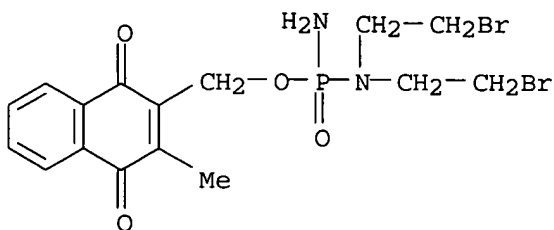
CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-36-2 CAPLUS

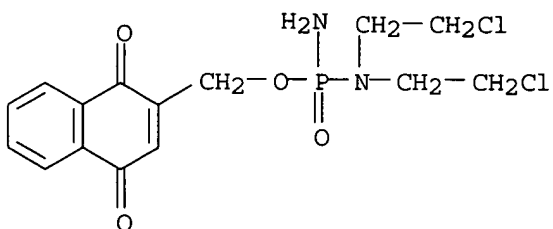
05/31/2005 10725191.trn

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



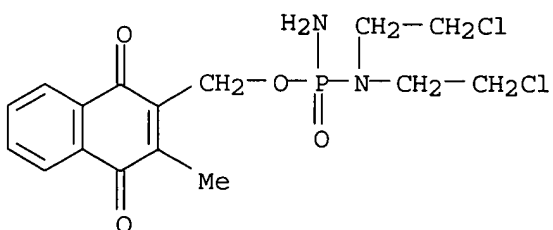
RN 289896-38-4 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



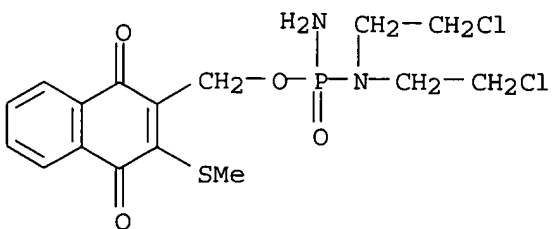
RN 289896-46-4 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-47-5 CAPLUS

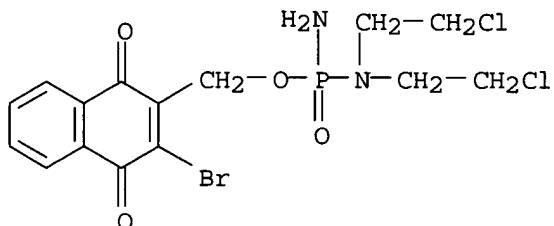
CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, [1,4-dihydro-3-(methylthio)-1,4-dioxo-2-naphthalenyl]methyl ester (9CI) (CA INDEX NAME)



05/31/2005 10725191.trn

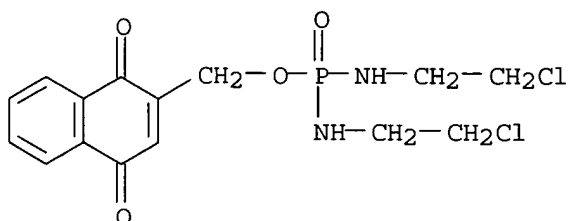
RN 289896-48-6 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (3-bromo-1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



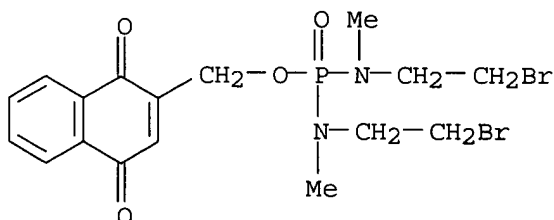
RN 289896-50-0 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



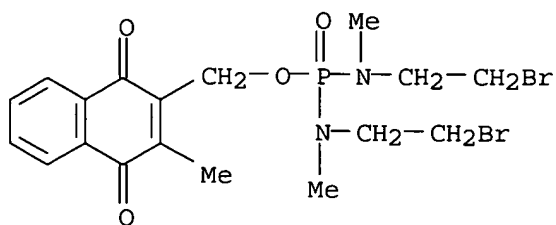
RN 289896-58-8 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

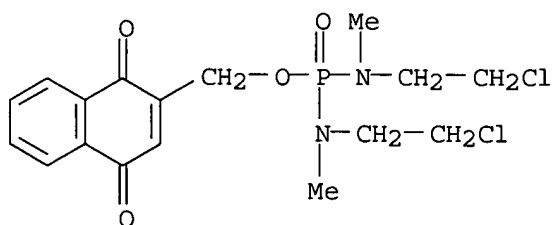


RN 289896-59-9 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-, (1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-60-2 CAPLUS
 CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-N,N'-dimethyl-,
 (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> FIL REGISTRY

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	11.68	175.53
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-1.46	-1.46

FILE 'REGISTRY' ENTERED AT 14:21:41 ON 31 MAY 2005
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
 COPYRIGHT (C) 2005 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
 provided by InfoChem.

STRUCTURE FILE UPDATES: 29 MAY 2005 HIGHEST RN 851364-46-0
 DICTIONARY FILE UPDATES: 29 MAY 2005 HIGHEST RN 851364-46-0

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 18, 2005

Please note that search-term pricing does apply when
 conducting SmartSELECT searches.

 *

05/31/2005 10725191.trn

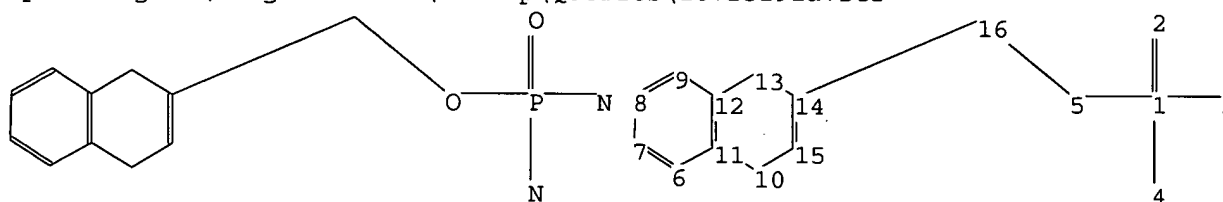
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
* *

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10725191a.str



chain nodes :

1 2 3 4 5 16

ring nodes :

6 7 8 9 10 11 12 13 14 15

chain bonds :

1-2 1-3 1-4 1-5 5-16 14-16

ring bonds :

6-7 6-11 7-8 8-9 9-12 10-11 10-15 11-12 12-13 13-14 14-15

exact/norm bonds :

1-2 1-3 1-4 1-5 5-16

exact bonds :

10-11 10-15 12-13 13-14 14-15 14-16

normalized bonds :

6-7 6-11 7-8 8-9 9-12 11-12

isolated ring systems :

containing 6 :

Match level :

1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS 6:Atom 7:Atom 8:Atom 9:Atom
10:Atom 11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:CLASS

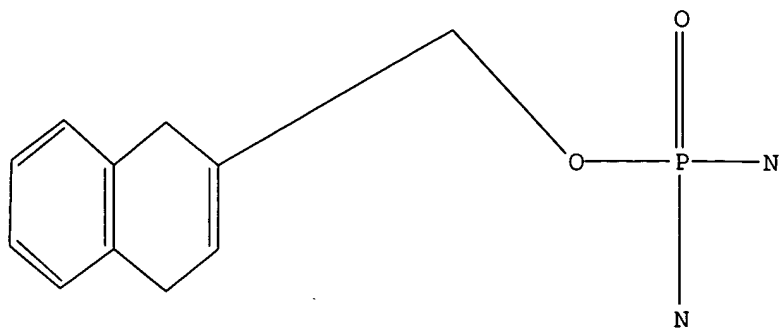
L5 STRUCTURE UPLOADED

=> d 15

L5 HAS NO ANSWERS

L5 STR

05/31/2005 10725191.trn



Structure attributes must be viewed using STN Express query preparation.

=> s 15

SAMPLE SEARCH INITIATED 14:21:58 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 0 TO ITERATE

100.0% PROCESSED 0 ITERATIONS
SEARCH TIME: 00.00.01

0 ANSWERS

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 0 TO 0
PROJECTED ANSWERS: 0 TO 0

L6 0 SEA SSS SAM L5

=> s 15 sss full

FULL SEARCH INITIATED 14:22:03 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 27 TO ITERATE

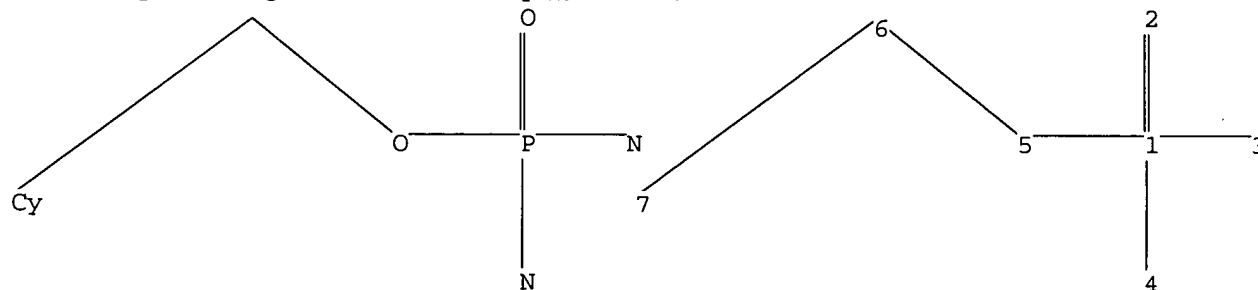
100.0% PROCESSED 27 ITERATIONS
SEARCH TIME: 00.00.01

10 ANSWERS

L7 10 SEA SSS FUL L5

=>

Uploading C:\Program Files\Stnexp\Queries\10725191 b.str



chain nodes :

1 2 3 4 5 6 7

chain bonds :

1-2 1-3 1-4 1-5 5-6 6-7

05/31/2005 10725191.trn

exact/norm bonds :

1-2 1-3 1-4 1-5 5-6 6-7

Match level :

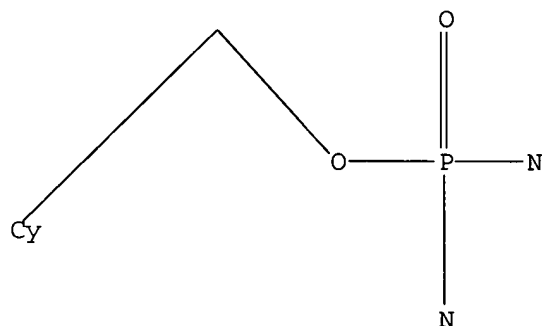
1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS 6:CLASS 7:Atom

L8 STRUCTURE UPLOADED

=> d l8

L8 HAS NO ANSWERS

L8 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l8

SAMPLE SEARCH INITIATED 14:28:45 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 408 TO ITERATE

100.0% PROCESSED 408 ITERATIONS

19 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**

BATCH **COMPLETE**

PROJECTED ITERATIONS: 6949 TO 9371

PROJECTED ANSWERS: 119 TO 641

L9 19 SEA SSS SAM L8

=> s l8 sss full

FULL SEARCH INITIATED 14:28:51 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 8095 TO ITERATE

100.0% PROCESSED 8095 ITERATIONS

SEARCH TIME: 00.00.01

487 ANSWERS

L10 487 SEA SSS FUL L8

=> FIL CAPLUS

COST IN U.S. DOLLARS

SINCE FILE
ENTRY

TOTAL
SESSION

05/31/2005 10725191.trn

FULL ESTIMATED COST	326.96	502.49
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	0.00	-1.46

FILE 'CAPLUS' ENTERED AT 14:28:56 ON 31 MAY 2005
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 31 May 2005 VOL 142 ISS 23
FILE LAST UPDATED: 30 May 2005 (20050530/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d his

(FILE 'HOME' ENTERED AT 14:11:56 ON 31 MAY 2005)

FILE 'REGISTRY' ENTERED AT 14:18:54 ON 31 MAY 2005

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 10 S L1 SSS FULL

FILE 'CAPLUS' ENTERED AT 14:19:30 ON 31 MAY 2005

L4 2 S L3

FILE 'REGISTRY' ENTERED AT 14:21:41 ON 31 MAY 2005

L5 STRUCTURE UPLOADED
L6 0 S L5
L7 10 S L5 SSS FULL
L8 STRUCTURE UPLOADED
L9 19 S L8
L10 487 S L8 SSS FULL

FILE 'CAPLUS' ENTERED AT 14:28:56 ON 31 MAY 2005

S 17
L11

2 L7

=> s 110

L12 189 L10

=> s 112 and quinone

05/31/2005 10725191.trn

33821 QUINONE
17757 QUINONES
42476 QUINONE
(QUINONE OR QUINONES)

L13 4 L12 AND QUINONE

=> s l12 and thu

144 THU
2238039 THUS
2238168 THU

(THU OR THUS)

L14 34 L12 AND THU

=> s l14 and p/dt

4708566 P/DT

L15 22 L14 AND P/DT

=> s l15 and py<=1999

19743743 PY<=1999

L16 19 L15 AND PY<=1999

=> s l16 and us/pc

1376888 US/PC

L17 7 L16 AND US/PC

=> d his

(FILE 'HOME' ENTERED AT 14:11:56 ON 31 MAY 2005)

FILE 'REGISTRY' ENTERED AT 14:18:54 ON 31 MAY 2005

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 10 S L1 SSS FULL

FILE 'CAPLUS' ENTERED AT 14:19:30 ON 31 MAY 2005

L4 2 S L3

FILE 'REGISTRY' ENTERED AT 14:21:41 ON 31 MAY 2005

L5 STRUCTURE UPLOADED
L6 0 S L5
L7 10 S L5 SSS FULL
L8 STRUCTURE UPLOADED
L9 19 S L8
L10 487 S L8 SSS FULL

FILE 'CAPLUS' ENTERED AT 14:28:56 ON 31 MAY 2005

L11 2 S L7
L12 189 S L10
L13 4 S L12 AND QUINONE
L14 34 S L12 AND THU
L15 22 S L14 AND P/DT
L16 19 S L15 AND PY<=1999
L17 7 S L16 AND US/PC

=> d l11 ibib abs hitstr tot

L11 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:50656 CAPLUS

DOCUMENT NUMBER: 134:95489

TITLE: Phosphoramidate compounds, their preparation,
pharmaceutical compositions containing them, and their
use in the treatment of cancer
INVENTOR(S): Borch, Richard E.; Hernick, Marcy; Flader, Carolee
PATENT ASSIGNEE(S): Purdue Research Foundation, USA
SOURCE: BCF Int. Appl., 61 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001004130	A1	20010118	WO 2000-US19361	20000714
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CU, CZ, DE, DK, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2003008850	A1	20030109	US 2002-47465	20020114
US 6656926	B2	20031202		
US 2004176332	A1	20040909	US 2003-725191	20031201
PRIORITY APPLN. INFO.:			US 1999-143799P	P 19990714
			WO 2000-US19361	A1 20000714
			US 2002-47465	A1 20020114

OTHER SOURCE(S): MARPAT 134:95489

AB The invention provides compds. R1CH2OP(:O)(NRcRd)NRaRb [R1 = organic releasing group comprising quinone ring; Ra-Rd = H, C1-6 alkyl, CH2CH2X; X = halo, C1-6 alkylsulfonyl, halo(C1-6)alkylsulfonyl ((substituted)aryl)sulfonyl; provided that ≥2 of Ra-Rd are CH2CH2X], as well as pharmaceutical compns. comprising such compds. or salts. The compds. are useful for treating cancer in animals. Preparation of the compds. of the invention is described.

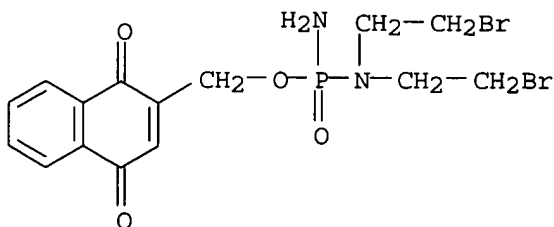
IT 289896-35-1P 289896-38-4P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(phosphoramidate compound preparation, pharmaceutical compns., and use in treatment of cancer)

RN 289896-35-1 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

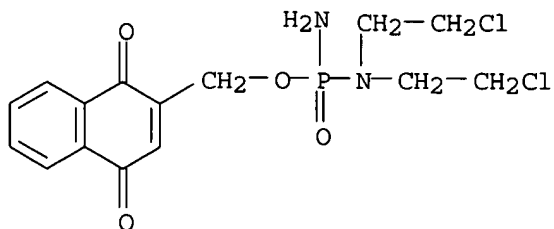


05/31/2005

10725191.trn

RN 289896-38-4 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



IT 289896-36-2P 289896-46-4P 289896-47-5P

289896-48-6P 289896-50-0P 289896-58-8P

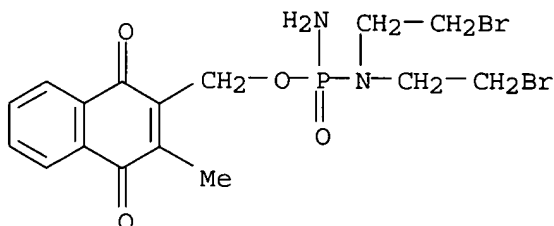
289896-59-9P 289896-60-2P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(phosphoramidate compound preparation, pharmaceutical compns., and use in treatment of cancer)

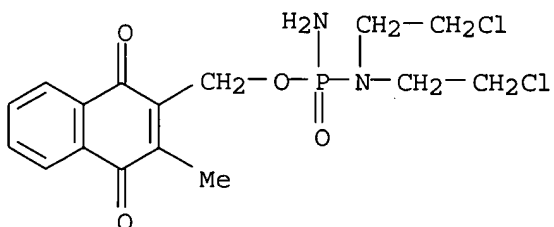
RN 289896-36-2 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



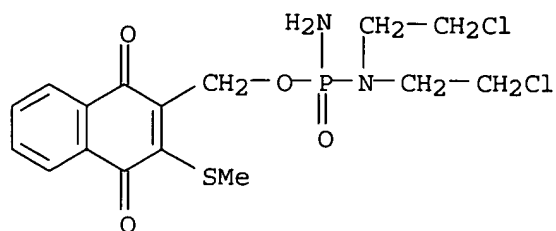
RN 289896-46-4 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



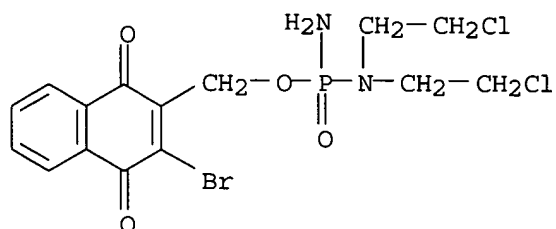
RN 289896-47-5 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, [1,4-dihydro-3-(methylthio)-1,4-dioxo-2-naphthalenyl]methyl ester (9CI) (CA INDEX NAME)



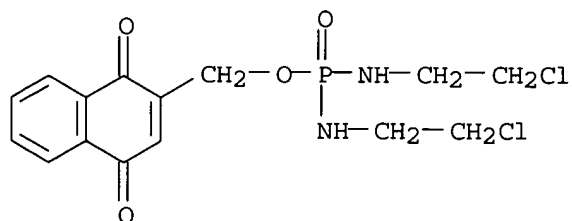
RN 289896-48-6 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (3-bromo-1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



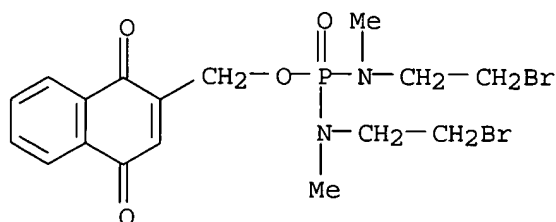
RN 289896-50-0 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



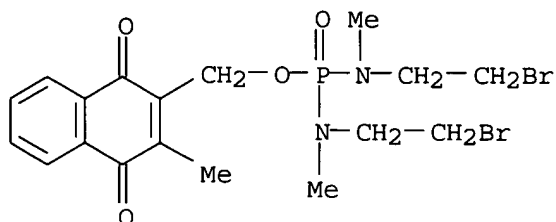
RN 289896-58-8 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

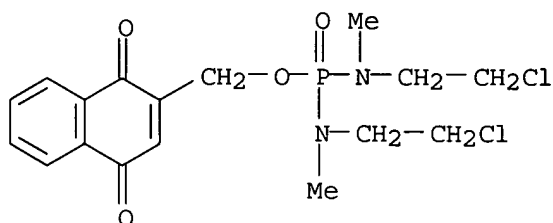


RN 289896-59-9 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-, (1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-60-2 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-N,N'-dimethyl-,
(1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:481806 CAPLUS

DOCUMENT NUMBER: 133:202587

TITLE: Development of Novel Quinone Phosphorodiamidate
Prodrugs Targeted to DT-DiaphoraseAUTHOR(S): Flader, Carolee; Liu, Jiwen; Borch, Richard F.
CORPORATE SOURCE: Departments of Chemistry and Pharmacology, University
of Rochester, Rochester, NY, 14642, USASOURCE: Journal of Medicinal Chemistry (2000), 43(16),
3157-3167

CODEN: JMCMAR; ISSN: 0022-2623

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of naphthoquinone and benzimidazolequinone phosphorodiamidates has been synthesized and studied as potential cytotoxic prodrugs activated by DT-diaphorase. Reduction of the quinone moiety in the target compds. was expected to provide a pathway for expulsion of the phosphoramidate mustard alkylating agent. All of the compds. synthesized were excellent substrates for purified human DT-diaphorase ($k_{cat}/K_m = 3 \times 10^7 - 3 \times 10^8 \text{ M}^{-1} \text{ s}^{-1}$). The naphthoquinones were toxic to both HT-29 and BE human colon cancer cell lines in a clonogenic assay; however, cytotoxicity did not correlate with DT-diaphorase activity in these cell lines. The benzimidazolequinone analogs were 1-2 orders of magnitude less cytotoxic than the naphthoquinone analogs. Chemical reduction of the naphthoquinone led

to

rapid expulsion of the phosphorodiamidate anion; in contrast, the benzimidazole reduction product was stable. Michael addition of glutathione

and

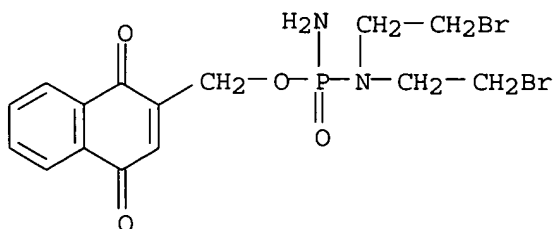
other sulfur nucleophiles provides an alternate mechanism for activation of the naphthoquinone phosphorodiamidates, and this mechanism may contribute to the cytotoxicity of these compds.

IT 289896-35-1P 289896-36-2P 289896-38-4P
289896-46-4P 289896-47-5P 289896-48-6P
289896-50-0P 289896-58-8P 289896-59-9P
289896-60-2P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation and antitumor structure-activity relations of novel quinone phosphorodiamide prodrugs targeted to DT-diaphorase)

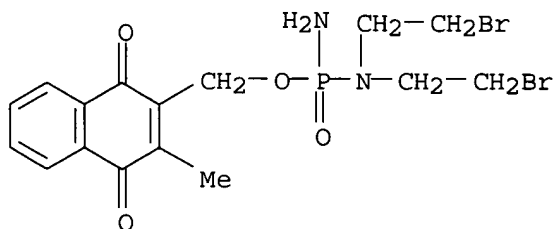
RN 289896-35-1 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



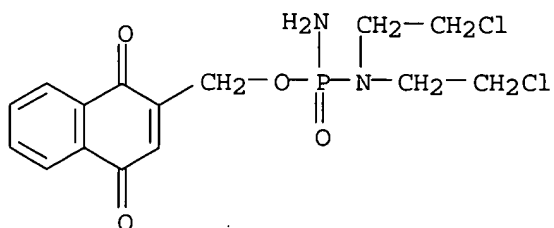
RN 289896-36-2 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-38-4 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

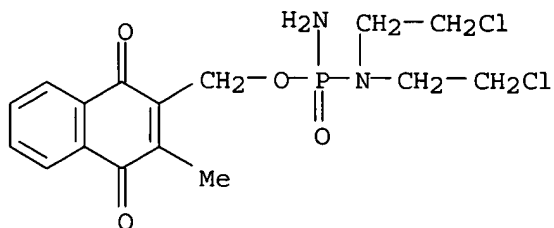


RN 289896-46-4 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dihydro-3-methyl-1,4-

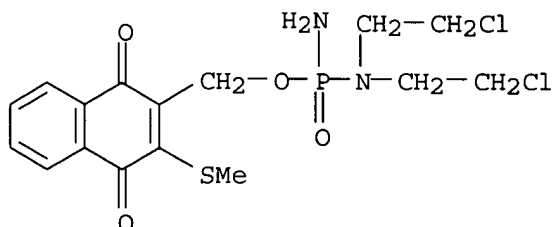
05/31/2005 10725191.trn

dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



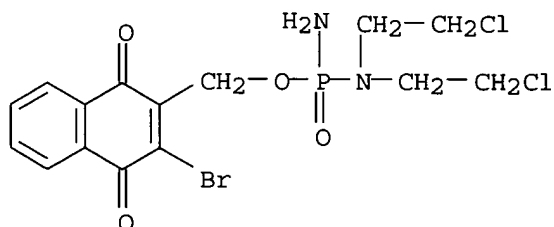
RN 289896-47-5 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, [1,4-dihydro-3-(methylthio)-1,4-dioxo-2-naphthalenyl]methyl ester (9CI) (CA INDEX NAME)



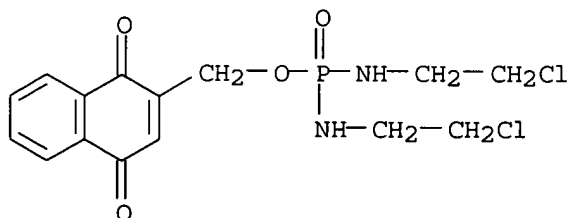
RN 289896-48-6 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (3-bromo-1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-50-0 CAPLUS

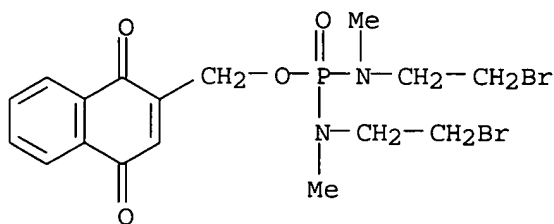
CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-58-8 CAPLUS

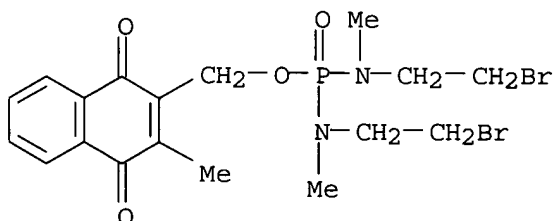
05/31/2005 10725191.trn

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-,
(1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



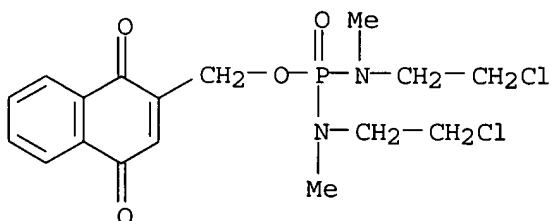
RN 289896-59-9 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-,
(1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA
INDEX NAME)



RN 289896-60-2 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-N,N'-dimethyl-,
(1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d l13 ibib abs hitstr tot

L13 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:509532 CAPLUS

DOCUMENT NUMBER: 137:201392

TITLE: Design, Synthesis, and Biological Evaluation of
Indolequinone Phosphoramidate Prodrugs Targeted to
DT-diaphorase

AUTHOR(S): Hernick, Marcy; Flader, Carolee; Borch, Richard F.

CORPORATE SOURCE: Department of Medicinal Chemistry and Molecular

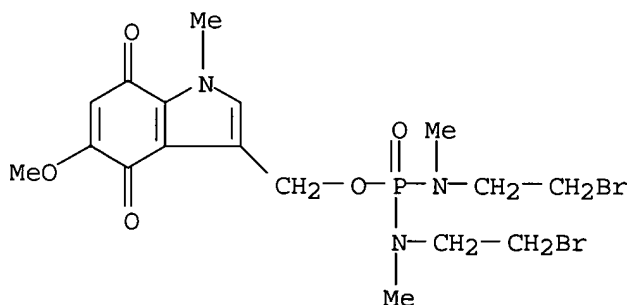
Pharmacology and the Cancer Center, Purdue University,
West Lafayette, IN, 47907, USA
SOURCE: Journal of Medicinal Chemistry (2002), 45(16),
3540-3548
CODEN: JMCMAR; ISSN: 0022-2623
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 137:201392

AB 2- And 3-substituted indolequinone phosphoramidate prodrugs targeted to DT-diaphorase (DTD) were synthesized and evaluated. These compds. (e.g. (5-methoxy-1-methyl-4,7-indolequinon-2-yl)methyl N,N-bis(2-bromoethyl)phosphorodiamidate) are designed to undergo activation via **quinone** reduction by DTD followed by expulsion of the phosphoramidate mustard substituent from the hydroquinone. Chemical reduction of the phosphoramidate prodrugs led to rapid expulsion of the corresponding phosphoramidate anions in both series of compds. Compds. substituted at the 2-position are excellent substrates for human DTD ($k_{cat}/K_M = (2-5) + 106 \text{ M}^{-1} \text{ s}^{-1}$); however, compds. substituted at the 3-position are potent inhibitors of the target enzyme. Both series of compds. are toxic in HT-29 and BE human colon cancer cell lines in a clonogenic assay. There was a correlation found between cytotoxicity and DTD activity for the 2-series of phosphoramidates; however, there was no correlation between cytotoxicity and DTD activity in the 3-series of compds. This finding suggests an alternative mechanism for the activation of these compds.

IT 318974-70-8P 318974-71-9P 318974-73-1P
RL: BSU (Biological study, unclassified); PAC (Pharmacological activity); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation and evaluation of indolequinone phosphoramidates as prodrug targeted to DT-diaphorase)

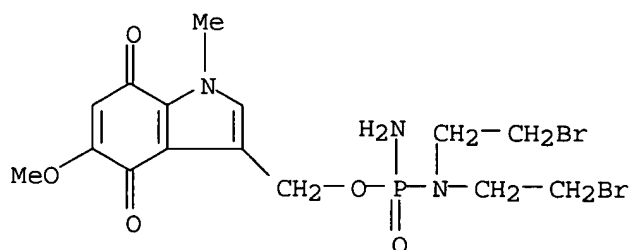
RN 318974-70-8 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-, (4,7-dihydro-5-methoxy-1-methyl-4,7-dioxo-1H-indol-3-yl)methyl ester (9CI)
(CA INDEX NAME)



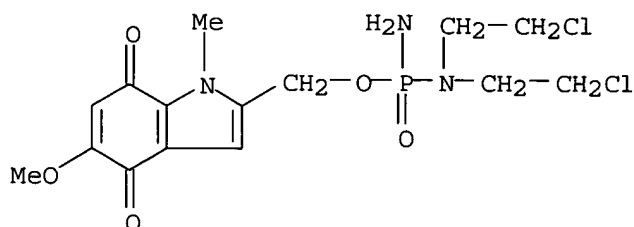
RN 318974-71-9 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (4,7-dihydro-5-methoxy-1-methyl-4,7-dioxo-1H-indol-3-yl)methyl ester (9CI) (CA INDEX NAME)



RN 318974-73-1 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (4,7-dihydro-5-methoxy-1-methyl-4,7-dioxo-1H-indol-2-yl)methyl ester (9CI) (CA INDEX NAME)



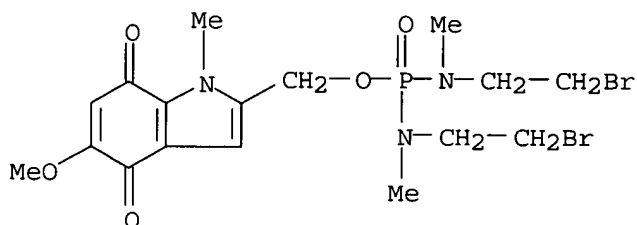
IT 318974-72-0P

RL: BSU (Biological study, unclassified); PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation and evaluation of indolequinone phosphoramidates as prodrug targeted to DT-diaphorase)

RN 318974-72-0 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-, (4,7-dihydro-5-methoxy-1-methyl-4,7-dioxo-1H-indol-2-yl)methyl ester (9CI) (CA INDEX NAME)



IT 318974-74-2P

RL: BSU (Biological study, unclassified); PAC (Pharmacological activity); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

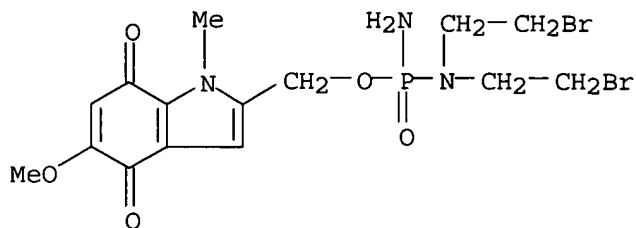
(preparation, chemical reduction and evaluation of indolequinone phosphoramidates

as prodrug targeted to DT-diaphorase)

RN 318974-74-2 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (4,7-dihydro-5-methoxy-1-

methyl-4,7-dioxo-1H-indol-2-yl)methyl ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:50656 CAPLUS

DOCUMENT NUMBER: 134:95489

TITLE: Phosphoramidate compounds, their preparation, pharmaceutical compositions containing them, and their use in the treatment of cancer

INVENTOR(S): Borch, Richard E.; Hernick, Marcy; Flader, Carolee

PATENT ASSIGNEE(S): Purdue Research Foundation, USA

SOURCE: PCI Int. Appl., 61 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001004130	A1	20010118	WO 2000-US19361	20000714
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CU, CZ, DE, DK, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2003008850	A1	20030109	US 2002-47465	20020114
US 6656926	B2	20031202		
US 2004176332	A1	20040909	US 2003-725191	20031201
PRIORITY APPLN. INFO.:			US 1999-143799P	P 19990714
			WO 2000-US19361	A1 20000714
			US 2002-47465	A1 20020114

OTHER SOURCE(S): MARPAT 134:95489

AB The invention provides compds. R1CH2OP(:O)(NRcRd)NRaRb [R1 = organic releasing group comprising **quinone** ring; Ra-Rd = H, C1-6 alkyl, CH2CH2X; X = halo, C1-6 alkylsulfonyl, halo(C1-6)alkylsulfonyl ((substituted)aryl)sulfonyl; provided that ≥2 of Ra-Rd are CH2CH2X], as well as pharmaceutical compns. comprising such compds. or salts. The compds. are useful for treating cancer in animals. Preparation of the compds. of the invention is described.

IT 289896-35-1P 289896-38-4P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological

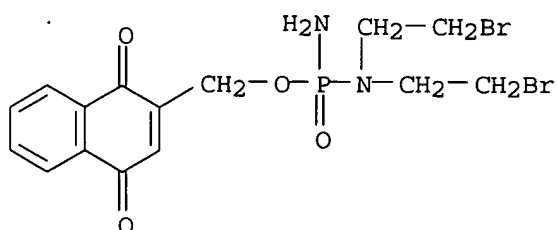
05/31/2005

10725191.trn

study, unclassified); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(phosphoramidate compound preparation, pharmaceutical compns., and use in treatment of cancer)

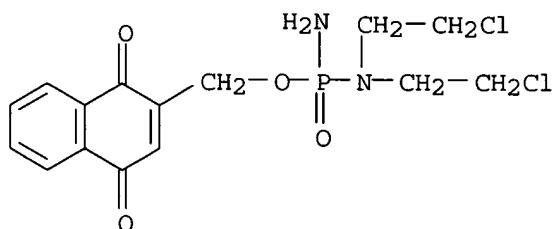
RN 289896-35-1 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-38-4 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

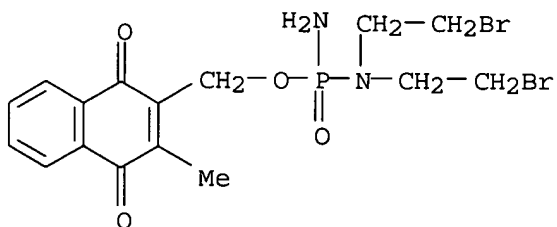


IT 289896-36-2P 289896-46-4P 289896-47-5P
289896-48-6P 289896-50-0P 289896-58-8P
289896-59-9P 289896-60-2P 318974-70-8P
318974-71-9P 318974-72-0P 318974-73-1P
318974-74-2P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(phosphoramidate compound preparation, pharmaceutical compns., and use in treatment of cancer)

RN 289896-36-2 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

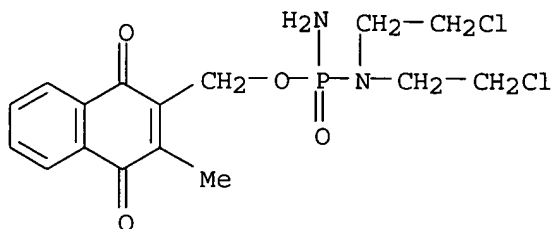


05/31/2005

10725191.trn

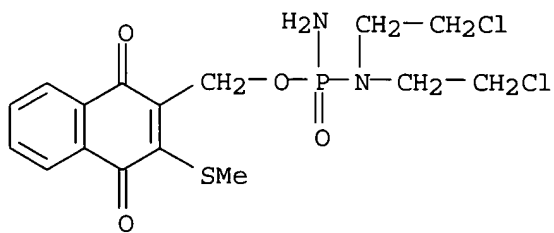
RN 289896-46-4 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



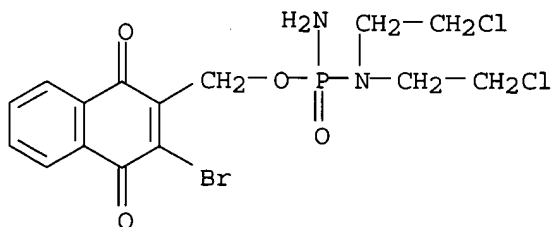
RN 289896-47-5 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, [1,4-dihydro-3-(methylthio)-1,4-dioxo-2-naphthalenyl]methyl ester (9CI) (CA INDEX NAME)



RN 289896-48-6 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (3-bromo-1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

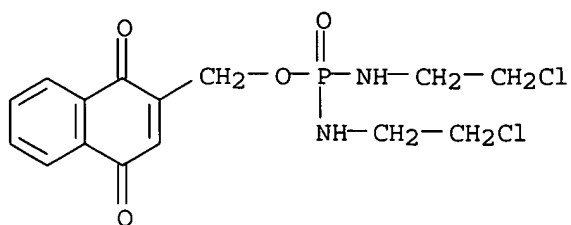


RN 289896-50-0 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

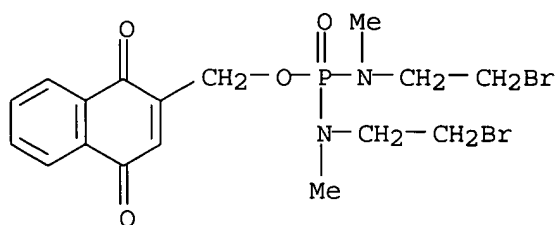
05/31/2005

10725191.trn



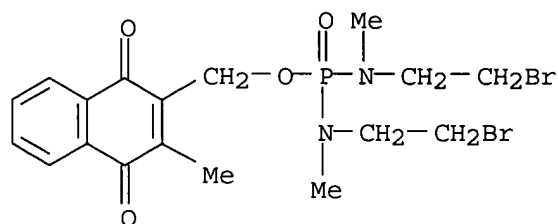
RN 289896-58-8 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-,
(1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



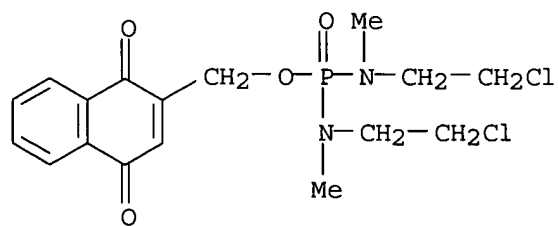
RN 289896-59-9 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-,
(1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA
INDEX NAME)



RN 289896-60-2 CAPLUS

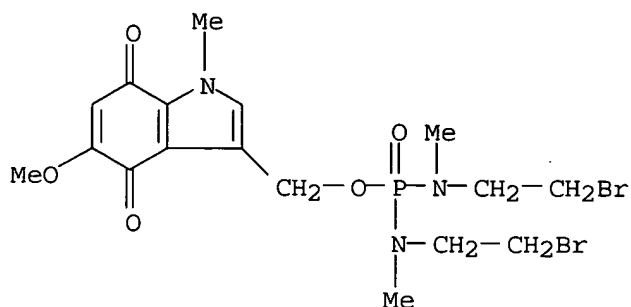
CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-N,N'-dimethyl-,
(1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 318974-70-8 CAPLUS

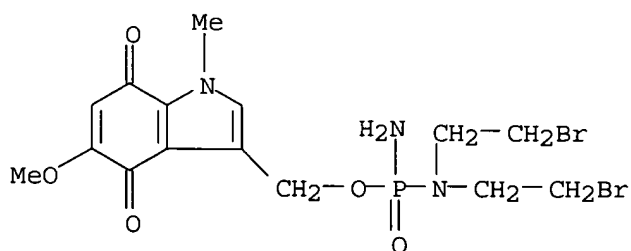
CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-,

(4,7-dihydro-5-methoxy-1-methyl-4,7-dioxo-1H-indol-3-yl)methyl ester (9CI)
(CA INDEX NAME)



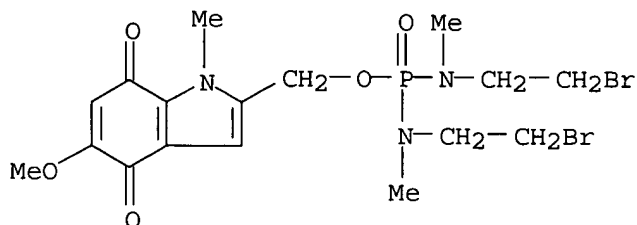
RN 318974-71-9 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (4,7-dihydro-5-methoxy-1-methyl-4,7-dioxo-1H-indol-3-yl)methyl ester (9CI) (CA INDEX NAME)



RN 318974-72-0 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-, (4,7-dihydro-5-methoxy-1-methyl-4,7-dioxo-1H-indol-2-yl)methyl ester (9CI)
(CA INDEX NAME)

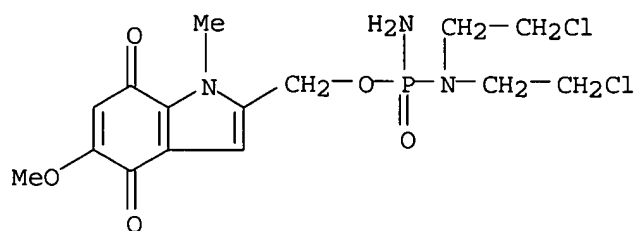


RN 318974-73-1 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (4,7-dihydro-5-methoxy-1-methyl-4,7-dioxo-1H-indol-2-yl)methyl ester (9CI) (CA INDEX NAME)

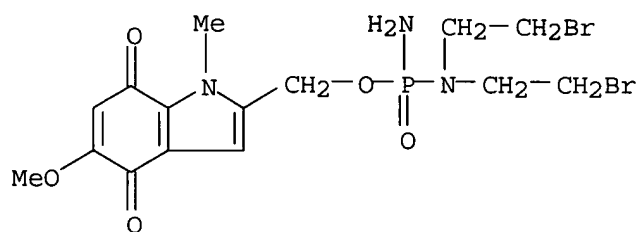
05/31/2005

10725191.trn



RN 318974-74-2 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (4,7-dihydro-5-methoxy-1-methyl-4,7-dioxo-1H-indol-2-yl)methyl ester (9CI) (CA INDEX NAME)



IT 289896-37-3P 289896-41-9P 289896-42-0P

289896-43-1P 289896-44-2P 289896-45-3P

289896-49-7P 289896-55-5P 289896-56-6P

318974-75-3P

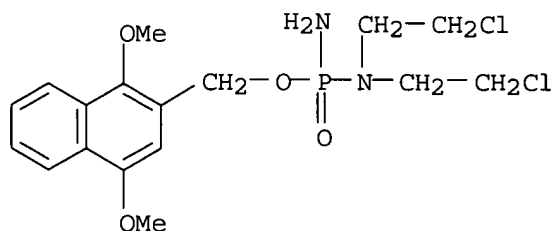
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reaction; phosphoramidate compound preparation, pharmaceutical

compns., and use in treatment of cancer)

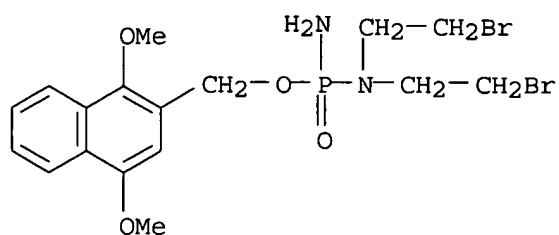
RN 289896-37-3 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dimethoxy-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



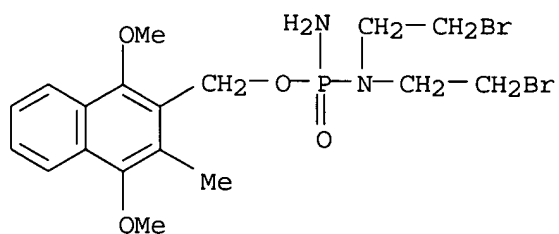
RN 289896-41-9 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dimethoxy-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



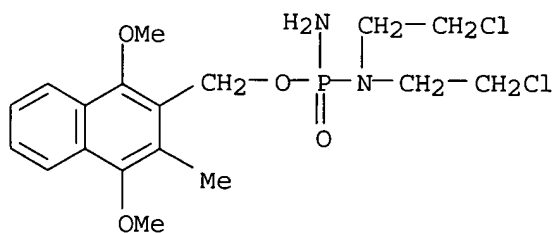
RN 289896-42-0 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dimethoxy-3-methyl-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



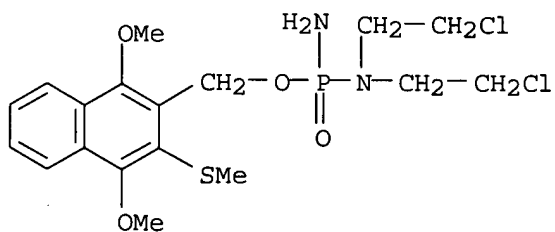
RN 289896-43-1 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dimethoxy-3-methyl-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



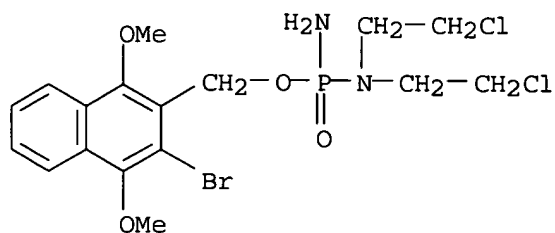
RN 289896-44-2 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, [1,4-dimethoxy-3-(methylthio)-2-naphthalenyl]methyl ester (9CI) (CA INDEX NAME)



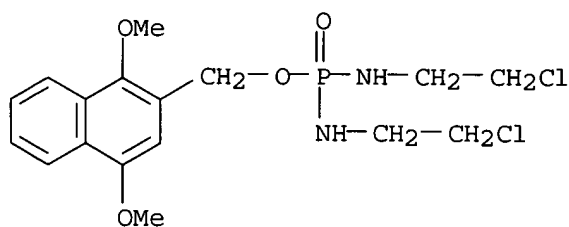
RN 289896-45-3 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (3-bromo-1,4-dimethoxy-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



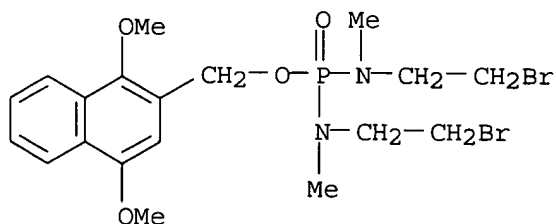
RN 289896-49-7 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-, (1,4-dimethoxy-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



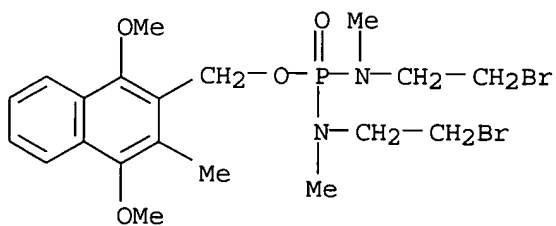
RN 289896-55-5 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-, (1,4-dimethoxy-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-56-6 CAPLUS

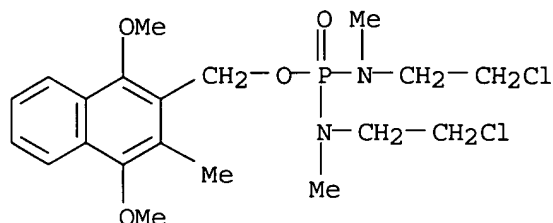
CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-, (1,4-dimethoxy-3-methyl-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 318974-75-3 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-N,N'-dimethyl-,

(1,4-dimethoxy-3-methyl-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:481806 CAPLUS

DOCUMENT NUMBER: 133:202587

TITLE: Development of Novel **Quinone** Phosphorodiamidate Prodrugs Targeted to DT-Diaphorase
 AUTHOR(S): Flader, Carolee; Liu, Jiwen; Borch, Richard F.
 CORPORATE SOURCE: Departments of Chemistry and Pharmacology, University of Rochester, Rochester, NY, 14642, USA
 SOURCE: Journal of Medicinal Chemistry (2000), 43(16), 3157-3167

CODEN: JMCMAR; ISSN: 0022-2623

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of naphthoquinone and benzimidazolequinone phosphorodiamidates has been synthesized and studied as potential cytotoxic prodrugs activated by DT-diaphorase. Reduction of the **quinone** moiety in the target compds. was expected to provide a pathway for expulsion of the phosphoramidate mustard alkylating agent. All of the compds. synthesized were excellent substrates for purified human DT-diaphorase ($k_{cat}/K_m = 3 \times 10^7 - 3 \times 10^8 \text{ M}^{-1} \text{ s}^{-1}$). The naphthoquinones were toxic to both HT-29 and BE human colon cancer cell lines in a clonogenic assay; however, cytotoxicity did not correlate with DT-diaphorase activity in these cell lines. The benzimidazolequinone analogs were 1-2 orders of magnitude less cytotoxic than the naphthoquinone analogs. Chemical reduction of the naphthoquinone led to rapid expulsion of the phosphorodiamidate anion; in contrast, the benzimidazole reduction product was stable. Michael addition of glutathione and other sulfur nucleophiles provides an alternate mechanism for activation of the naphthoquinone phosphorodiamidates, and this mechanism may contribute to the cytotoxicity of these compds.

IT 289896-35-1P 289896-36-2P 289896-38-4P

289896-46-4P 289896-47-5P 289896-48-6P

289896-50-0P 289896-53-3P 289896-54-4P

289896-58-8P 289896-59-9P 289896-60-2P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation and antitumor structure-activity relations of novel **quinone** phosphorodiamidate prodrugs targeted to DT-diaphorase)

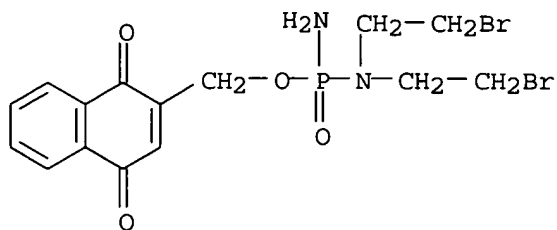
RN 289896-35-1 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dihydro-1,4-dioxo-2-

05/31/2005

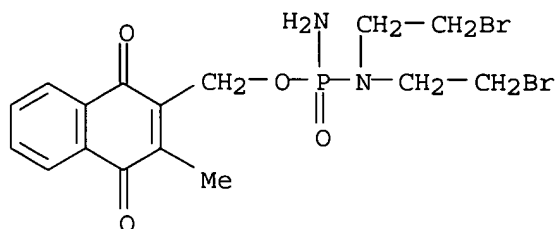
10725191.trn

naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



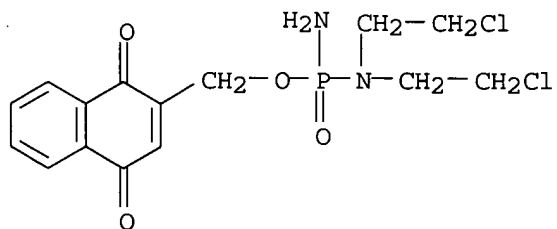
RN 289896-36-2 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



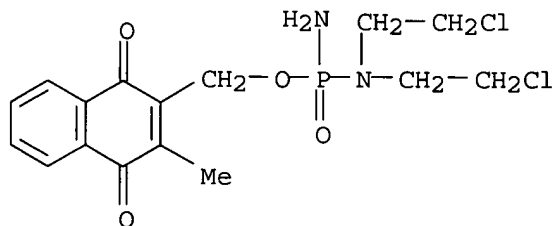
RN 289896-38-4 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-46-4 CAPLUS

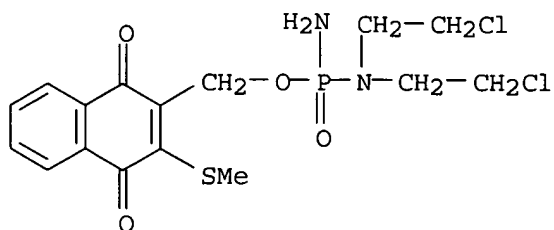
CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-47-5 CAPLUS

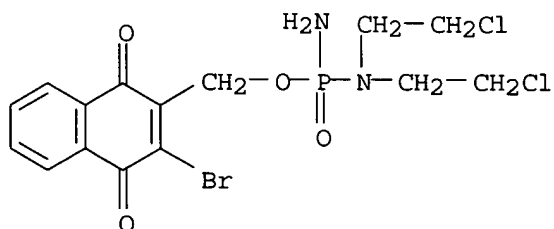
05/31/2005 10725191.trn

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, [1,4-dihydro-3-(methylthio)-1,4-dioxo-2-naphthalenyl]methyl ester (9CI) (CA INDEX NAME)



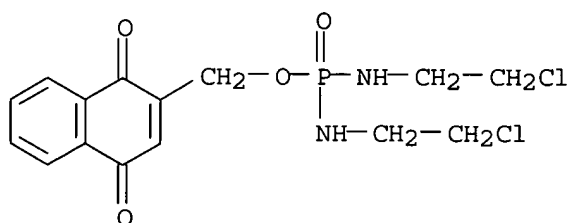
RN 289896-48-6 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (3-bromo-1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



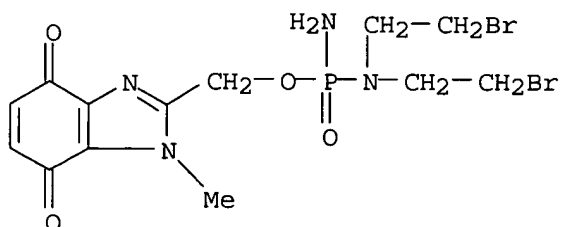
RN 289896-50-0 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-53-3 CAPLUS

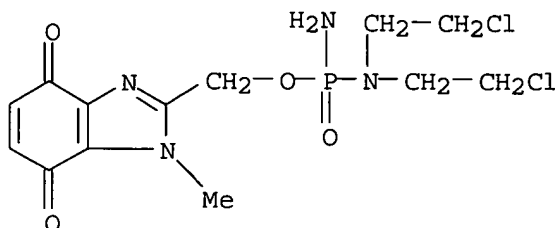
CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (4,7-dihydro-1-methyl-4,7-dioxo-1H-benzimidazol-2-yl)methyl ester (9CI) (CA INDEX NAME)



05/31/2005 10725191.trn

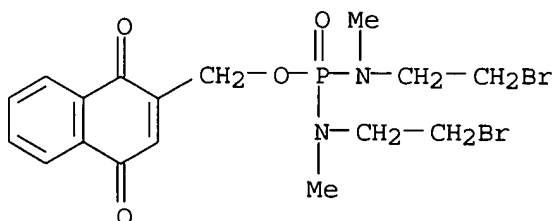
RN 289896-54-4 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (4,7-dihydro-1-methyl-4,7-dioxo-1H-benzimidazol-2-yl)methyl ester (9CI) (CA INDEX NAME)



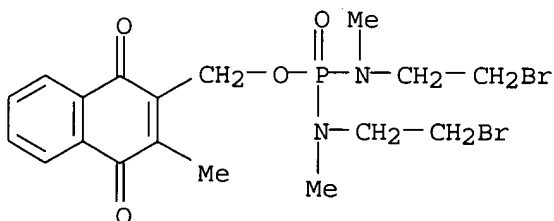
RN 289896-58-8 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



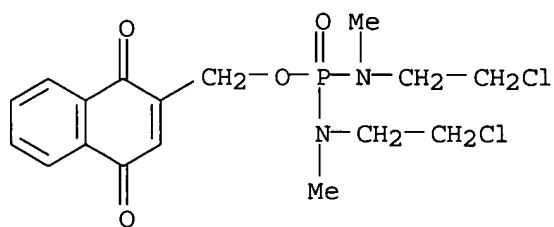
RN 289896-59-9 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-, (1,4-dihydro-3-methyl-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-60-2 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-N,N'-dimethyl-, (1,4-dihydro-1,4-dioxo-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



IT 289896-37-3P 289896-41-9P 289896-42-0P

289896-43-1P 289896-44-2P 289896-45-3P

289896-49-7P 289896-51-1P 289896-52-2P

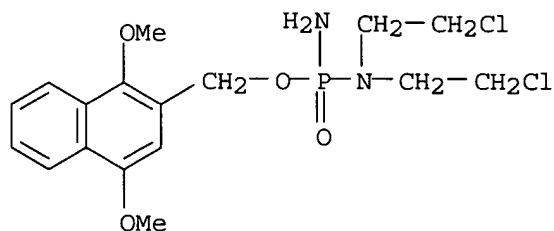
289896-55-5P 289896-56-6P 289896-57-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and antitumor structure-activity relations of novel **quinone** phosphorodiamidate prodrugs targeted to DT-diaphorase)

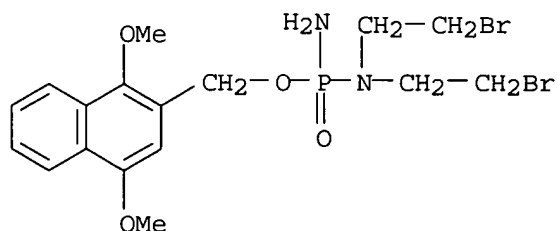
RN 289896-37-3 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dimethoxy-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-41-9 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dimethoxy-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

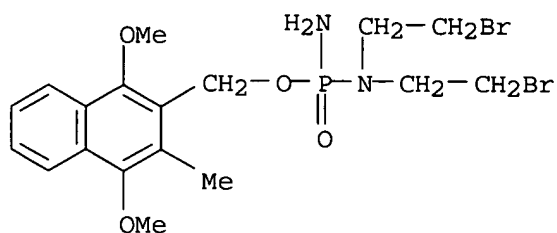


RN 289896-42-0 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (1,4-dimethoxy-3-methyl-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

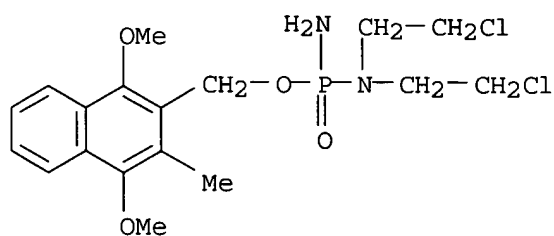
05/31/2005

10725191.trn



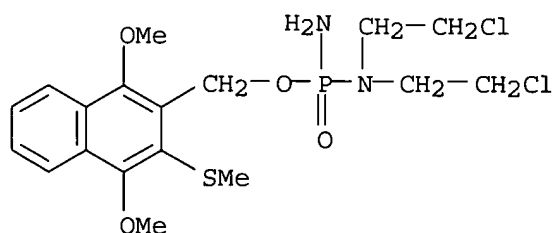
RN 289896-43-1 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (1,4-dimethoxy-3-methyl-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



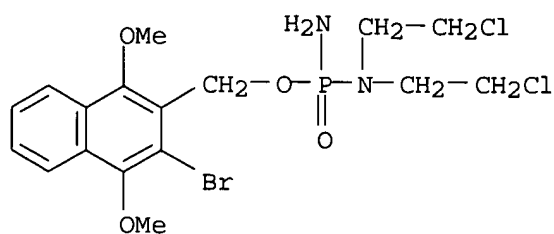
RN 289896-44-2 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, [1,4-dimethoxy-3-(methylthio)-2-naphthalenyl]methyl ester (9CI) (CA INDEX NAME)



RN 289896-45-3 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (3-bromo-1,4-dimethoxy-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

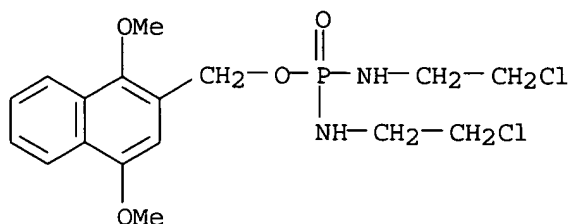


RN 289896-49-7 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-, (1,4-dimethoxy-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)

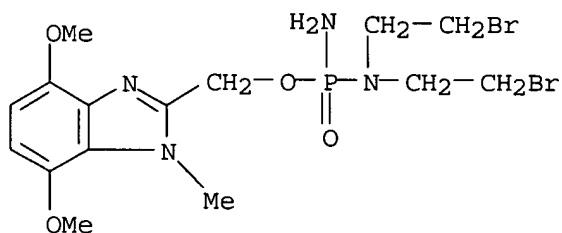
05/31/2005

10725191.trn



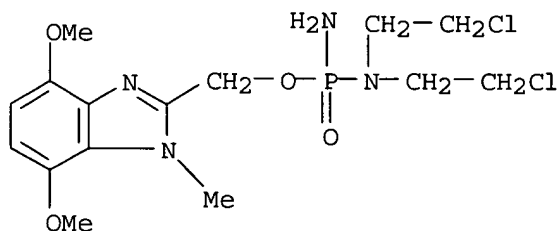
RN 289896-51-1 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-bromoethyl)-, (4,7-dimethoxy-1-methyl-1H-benzimidazol-2-yl)methyl ester (9CI) (CA INDEX NAME)



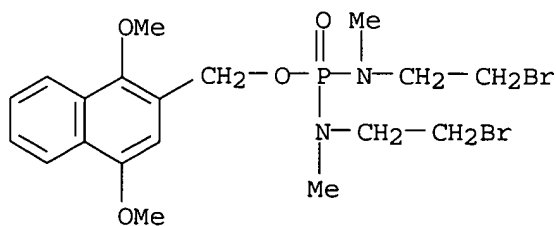
RN 289896-52-2 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (4,7-dimethoxy-1-methyl-1H-benzimidazol-2-yl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-55-5 CAPLUS

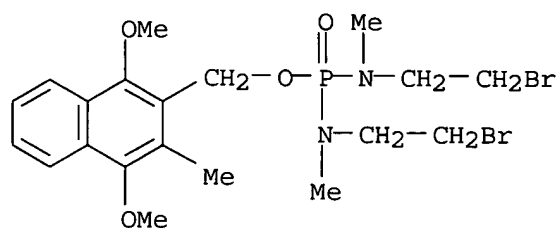
CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-, (1,4-dimethoxy-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



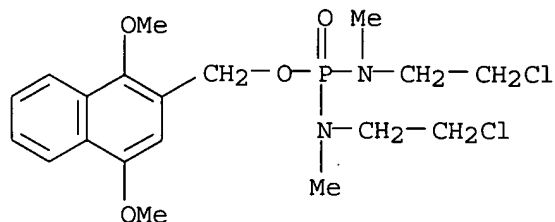
RN 289896-56-6 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-bromoethyl)-N,N'-dimethyl-,

(1,4-dimethoxy-3-methyl-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)



RN 289896-57-7 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-N,N'-dimethyl-,
(1,4-dimethoxy-2-naphthalenyl)methyl ester (9CI) (CA INDEX NAME)REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1962:79428 CAPLUS

DOCUMENT NUMBER: 56:79428

ORIGINAL REFERENCE NO.: 56:15507a-f

TITLE: Phosphorylated pyrimidines

AUTHOR(S): Hodan, James J.; Tieckelmann, Howard

CORPORATE SOURCE: Univ. of Buffalo, Buffalo, NY

SOURCE: Journal of Organic Chemistry (1961), 26, 4429-33

CODEN: JOCEAH; ISSN: 0022-3263

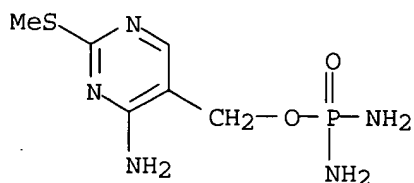
DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

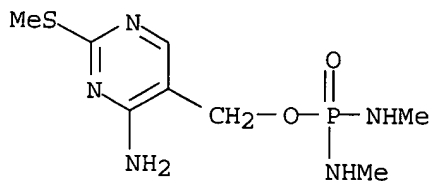
AB A solution of 2.0 g. 4-amino-5-formyl-2-(methylthio)pyrimidine (I), 0.20 g. triethylamine, and 2.6 g. dimethyl hydrogen phosphite in 40 ml. dry MeOH was refluxed 10 hrs. After removal of the solvent and removal of unchanged I the residue was recrystd. from EtOH- Et2O to give 1.12 g. dimethyl 5-[4-amino-2-(methylthio)pyrimidyl]hydroxymethylphosphonate, m. 109-12°. In a similar manner the following compds. were prepared: diethyl 5-[4-amino-2-(methylthio)pyrimidyl]hydroxymethylphosphonate, m. 120-2°; dibutyl 5-[4-amino-2-(methylthio)pyrimidyl]hydroxymethylphosphonate, m. 171-3° (decomposition); diphenyl 5-[4-amino-2-(methylthio)pyrimidyl]hydroxymethylphosphonate, m. 134-6°, diethyl 5-(4-amino-2-hydroxypyrimidyl)hydroxymethylphosphonate hydrochloride, m. 88-91°; 5-(4-amino-2-hydroxypyrimidyl)hydroxymethylphosphonic acid, m. 300-3° (decomposition); diethyl 5-[4-amino-5-(methylsulfonyl)pyrimidyl]hydroxymethylphosphonate, m. 181-3°; and diethyl 5-(2,4-diaminopyrimidyl)hydroxymethylphosphonate, m. above 220° (decomposition). 5-[4-Amino-2-(methylthio)pyrimidyl]methylphosphonates were prepared by heating 0.012 mole trialkyl phosphite

and 4-amino-5-bromomethyl-2-(methylthio)pyrimidine hydrobromide at 100-180° 4-6 hrs. The amber solid, which formed on cooling was purified by recrystn. from ethanol-ether and ethanol-acetone, and methanolacetone. The following 5-(4-amino-2-(methylthio)pyrimidyl)methyl phosphonates were prepared (alkyl substituent, % yield, m.p. given): Me, 52, 281-4° (decomposition); Et, 52, 268-70° (decomposition), iso-Pr, 47, 286-9° (decomposition), C₆H₁₃, 47, 121-3°, Ph, 43, 197-200° (decomposition). The reaction of POCl₃ with 2-(methylthio)-4-amino-5-hydroxymethylpyrimidine (II) gave 5-(4-amino-2-(methylthio)pyrimidyl)methyl phosphorodichloridate (III), m. 260° (decomposition). III and ethylenimine gave 5-(4-amino-2-methylthiopyrimidyl)methyl N,N-diethylenephosphorodiamidate, m. 176-9° (decomposition), thiophosphoryl chloride and II gave 5-(4-amino-2-methylthiopyrimidyl)methyl phosphorodichlorothioate, m. 231-4° (decomposition). This was used as an intermediate to form 5-(4-amino-2-methylthiopyrimidyl)methyl N,N'-diethylenephosphorodiamidothioate, m. 193-6°. Diethyl and dimethyl thionochlorophosphate treated with II in the presence of triethylamine gave diethyl and dimethyl 5-(4-amino-2-methylthiopyrimidyl)methyl phosphorothioate hydrochloride, m. 157-9° (decomposition) and 149-52° (decomposition), resp.

IT **89534-10-1**, Phosphorodiamidic acid, [4-amino-2-(methylthio)-5-pyrimidinyl]methyl ester **90222-55-2**, Phosphorodiamidic acid, N,N'-dimethyl-, [4-amino-2-(methylthio)-5-pyrimidinyl]methyl ester (preparation of)
 RN 89534-10-1 CAPLUS
 CN Phosphorodiamidic acid, [4-amino-2-(methylthio)-5-pyrimidinyl]methyl ester (7CI) (CA INDEX NAME)



RN 90222-55-2 CAPLUS
 CN Phosphorodiamidic acid, N,N'-dimethyl-, [4-amino-2-(methylthio)-5-pyrimidinyl]methyl ester (7CI) (CA INDEX NAME)



=> d l17 ibib abs hitstr tot

L17 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1996:761756 CAPLUS
 DOCUMENT NUMBER: 126:42673
 TITLE: Tumor protease-activated prodrugs of phosphoramidate mustard analogs as antitumor agents

INVENTOR(S): Glazier, Arnold
 PATENT ASSIGNEE(S): Drug Innovation & Design, Incorporated, USA; Glazier, Arnold
 SOURCE: PCT Int. Appl., 45 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9633198	A1	19961024	WO 1996-US4882	19960411 <--
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN				
US 5659061	A	19970819	US 1995-425477	19950420 <--
CA 2215264	AA	19961024	CA 1996-2215264	19960411 <--
AU 9655389	A1	19961107	AU 1996-55389	19960411 <--
AU 697110	B2	19980924		
EP 821689	A1	19980204	EP 1996-912645	19960411 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 11504009	T2	19990406	JP 1996-531791	19960411 <--
AT 202781	E	20010715	AT 1996-912645	19960411
ES 2160815	T3	20011116	ES 1996-912645	19960411
PT 821689	T	20011228	PT 1996-912645	19960411
GR 3036796	T3	20020131	GR 2001-401658	20011004
PRIORITY APPLN. INFO.:			US 1995-425477	A 19950420
			WO 1996-US4882	W 19960411

OTHER SOURCE(S): MARPAT 126:42673

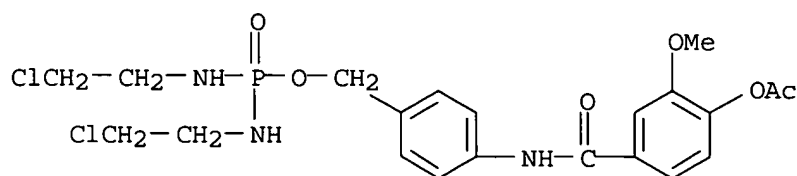
AB The composition, synthesis, and applications of tumor-associated protease-activated prodrugs of phosphoramidate mustard, isophosphoramidate mustard, and analogs with detoxification functionalities are described. These drugs release a cytotoxic phosphoramidate mustard analog following activation by tumor-associated proteases and esterases. The general structure for these drugs is AP(O)R1R2 (I) [R1 = (substituted) NHCH2CH2X; X = leaving group; R2 = (substituted) amino, (substituted) NHCH2CH2X; A = benzyloxy with ≥ 1 acyloxy or acylamino groups para or ortho to the phosphoester, wherein the acyloxy or acylamino groups are not (substituted or unsubstituted) p-guanidinobenzoyloxy or p-guanidinobenzoylamino groups]. Thus, I (A = 4-acetoxy-3-methoxybenzyloxy; R2 = NHCH2CH2X; X = Cl) (V-Isophos) was highly toxic to CEM cells (IC50 = 0.01 μ M) and IPC-81 rat myeloid leukemic cells in vitro and to FSA2 mouse fibrosarcomas in vivo, and was less toxic to bone marrow cells than other antitumor agents tested.

IT 184532-57-8P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (tumor protease-activated prodrugs of phosphoramidate mustard analogs as antitumor agents)

RN 184532-57-8 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-, [4-[[4-(acetyloxy)-3-methoxybenzoyl]amino]phenyl]methyl ester (9CI) (CA INDEX NAME)



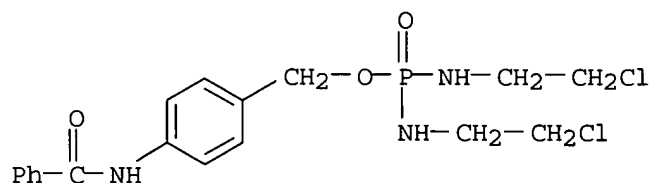
IT 184532-53-4 184532-54-5 184532-55-6
184532-56-7

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(tumor protease-activated prodrugs of phosphoramidate mustard analogs as antitumor agents)

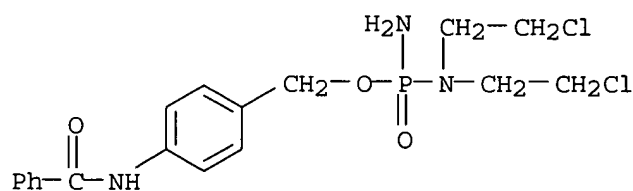
RN 184532-53-4 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-, [4-(benzoylamino)phenyl]methyl ester (9CI) (CA INDEX NAME)



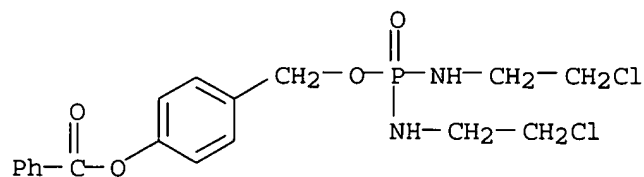
RN 184532-54-5 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-, [4-(benzoylamino)phenyl]methyl ester (9CI) (CA INDEX NAME)



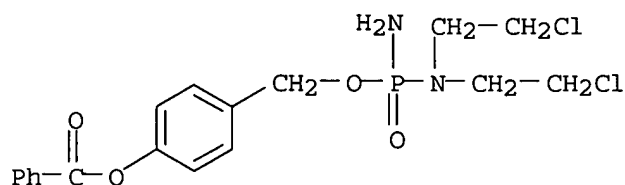
RN 184532-55-6 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-, [4-(benzoyloxy)phenyl]methyl ester (9CI) (CA INDEX NAME)



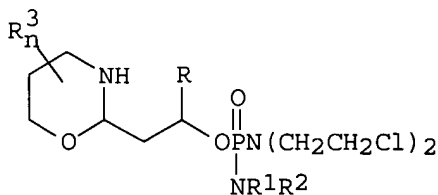
RN 184532-56-7 CAPLUS

CN Phosphorodiamidic acid, N,N'-bis(2-chloroethyl)-, [4-(benzoyloxy)phenyl]methyl ester (9CI) (CA INDEX NAME)

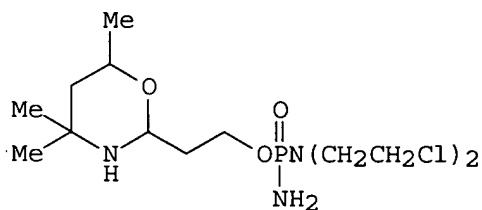


L17 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1990:572343 CAPLUS
 DOCUMENT NUMBER: 113:172343
 TITLE: Preparation of aldehydophosphamides as antitumor agents
 INVENTOR(S): Borch, Richard F.; Valente, Ronald R.
 PATENT ASSIGNEE(S): Research Corp. Technologies, Inc., USA
 SOURCE: PCT Int. Appl., 39 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 8911283	A1	19891130	WO 1989-US2272	19890523 <--
W: DK, JP				
RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
US 4908356	A	19900313	US 1988-198429	19880525 <--
CA 1337601	A1	19951121	CA 1989-600535	19890524 <--
PRIORITY APPLN. INFO.:			US 1988-198429	A 19880525
OTHER SOURCE(S):	CASREACT 113:172343; MARPAT 113:172343			
GI				



I



II

AB The title compds. [I; R = H, alkyl, cycloalkyl, arylalkyl, aryl, heterocyclyl, heterocyclylalkyl; R1, R2 = H, (halo-, alkoxy-, or OH-substituted) alkyl; R1R2N = morpholino; R3 = H, alkyl, CO2H alkoxycarbonyl; n = 0-3], were prepared as neoplasm inhibitors (phosphoramidate mustard prodrugs). Thus, H2C:CHCH2CH2OH was

treated successively with BuLi, Cl₂P(O)N(CH₂CH₂Cl)₂, and NH₃ to give H₂C:CHCH₂CH₂OP(O)(NH₂)N(CH₂CH₂Cl)₂. The latter was treated successfully with O₃, Me₂S, and H₂NCMe₂CH₂CHMeOH/K₂CO₃ to give II. I had LC99

(concentration

for 99% kill) of 5-145 μM against cyclophosphamide-resistant L1210 tumor cells. I are free of the urinary bladder toxicity shown by cyclophosphanides.

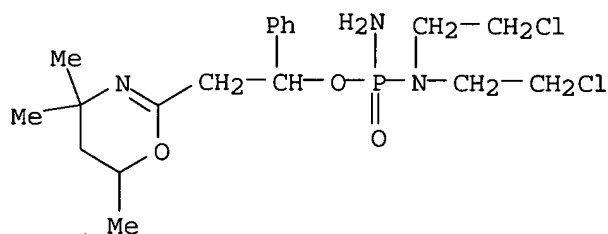
IT 129904-24-1P 129904-25-2P 129904-27-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reduction of, in preparation of neoplasm inhibitor)

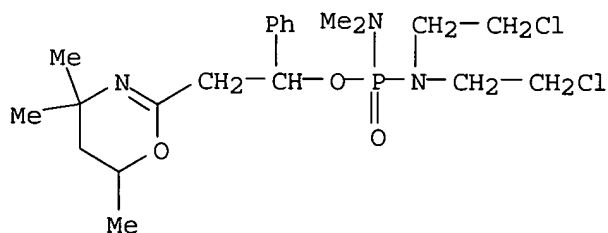
RN 129904-24-1 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, 2-(5,6-dihydro-4,4,6-trimethyl-4H-1,3-oxazin-2-yl)-1-phenylethyl ester (9CI) (CA INDEX NAME)



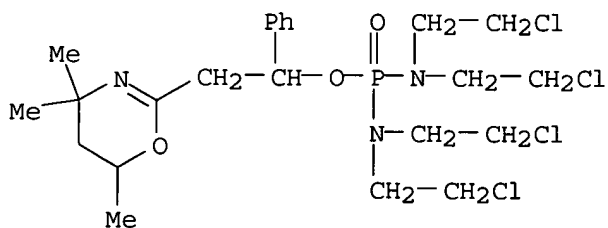
RN 129904-25-2 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-N',N'-dimethyl-, 2-(5,6-dihydro-4,4,6-trimethyl-4H-1,3-oxazin-2-yl)-1-phenylethyl ester (9CI) (CA INDEX NAME)



RN 129904-27-4 CAPLUS

CN Phosphorodiamidic acid, tetrakis(2-chloroethyl)-, 2-(5,6-dihydro-4,4,6-trimethyl-4H-1,3-oxazin-2-yl)-1-phenylethyl ester (9CI) (CA INDEX NAME)



IT 129904-22-9P

RL: SPN (Synthetic preparation); PREP (Preparation)

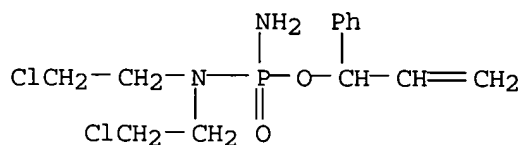
05/31/2005

10725191.trn

(preparation of, as intermediate for oxazinylethylphosphorodiamidate
neoplasm inhibitor)

RN 129904-22-9 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, 1-phenyl-2-propenyl ester
(9CI) (CA INDEX NAME)



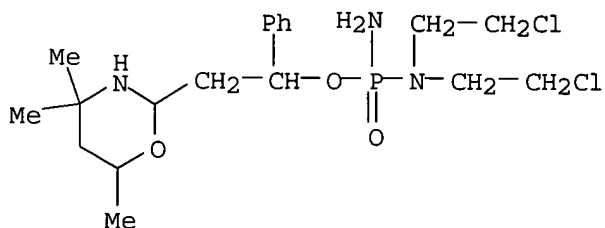
IT 129904-18-3P 129904-19-4P 129904-21-8P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)

(preparation of, as neoplasm inhibitor)

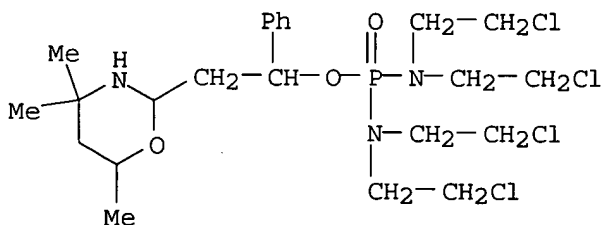
RN 129904-18-3 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, 1-phenyl-2-(tetrahydro-4,4,6-trimethyl-2H-1,3-oxazin-2-yl)ethyl ester (9CI) (CA INDEX NAME)



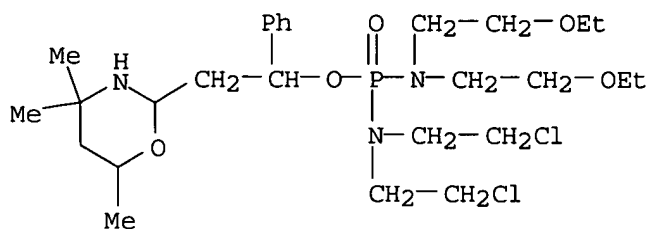
RN 129904-19-4 CAPLUS

CN Phosphorodiamidic acid, tetrakis(2-chloroethyl)-, 1-phenyl-2-(tetrahydro-4,4,6-trimethyl-2H-1,3-oxazin-2-yl)ethyl ester (9CI) (CA INDEX NAME)



RN 129904-21-8 CAPLUS

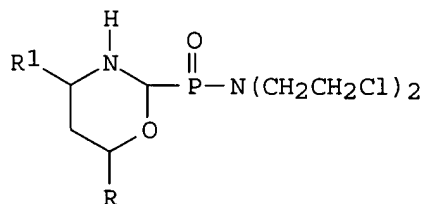
CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-N',N'-bis(2-ethoxyethyl)-, 1-phenyl-2-(tetrahydro-4,4,6-trimethyl-2H-1,3-oxazin-2-yl)ethyl ester (9CI) (CA INDEX NAME)



L17 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1990:526596 CAPLUS
 DOCUMENT NUMBER: 113:126596
 TITLE: Cyclophosphamide analogs useful as antitumor agents
 INVENTOR(S): Borch, Richard F.; Canute, Gregory W.
 PATENT ASSIGNEE(S): Research Corp. Technologies, Inc., USA
 SOURCE: PCT Int. Appl., 35 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 8911278	A1	19891130	WO 1989-US2238	19890523 <--
W: DK, JP				
RW: AT BE, CH, DE, FR, GB, IT, LU, NL, SE				
US 5190929	A	19930302	US 1988-198406	19880525 <--
PRIORITY APPLN. INFO.:			US 1988-198406	A 19880525
OTHER SOURCE(S):	MARPAT 113:126596			

GI



I

AB Cyclophosphamide analogs I (R = lower alkyl, aryl, aryl-lower alkyl, or N-, S-, or O-containing heterocycle; R1 = H, OH, OOH; when R1 = H, R ≠ Me, Ph; when R1 = OH, R ≠ Me) and their salts are useful as neoplasm inhibitors. Thus, 1-p-tolyl-3-butenyl N,N-bis(2-chloroethyl)phosphorodiamidate (preparation described) 18.56 mM was dissolved in Me2CO/H2O, treated with O3 for 30 min at 0°, flushed with O2, and reacted with H2O2 overnight. Workup yielded I (R1 = OOH; R = p-tolyl) (II). II injected i.p. at 60 μmol/kg increased the survival time of L1210 tumor-bearing mice 180%.

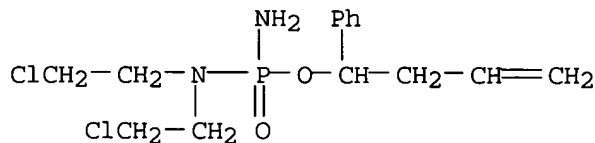
IT 129253-37-8P 129253-39-0P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation and reaction of, in preparation of cyclophosphamide analog neoplasm

05/31/2005 10725191.trn

inhibitor)

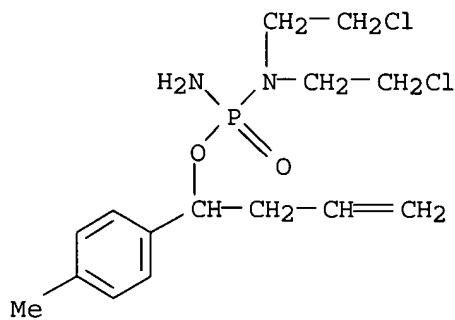
RN 129253-37-8 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, 1-phenyl-3-butenyl ester
(9CI) (CA INDEX NAME)



RN 129253-39-0 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, 1-(4-methylphenyl)-3-butenyl ester (9CI) (CA INDEX NAME)



L17 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1990:198797 CAPLUS

DOCUMENT NUMBER: 112:198797

TITLE: Phosphoramides useful as antitumor agents

INVENTOR(S): Borch, Richard F.; Canute, Gregory W.; Valente, Ronald R.

PATENT ASSIGNEE(S): Research Corp. Technologies, Inc., USA

SOURCE: PCT Int. Appl., 26 pp.

CODEN: PIXXD2

DOCUMENT TYPE:

Patent

LANGUAGE:

English

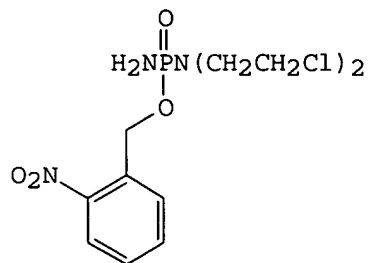
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
WO 8911484	A1	19891130	WO 1989-US2299	19890525 <--
W: DK, JP				
RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
EP 418292	A1	19910327	EP 1989-906634	19890525 <--
R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
JP 04501253	T2	19920305	JP 1989-506400	19890525 <--
US 5403932	A	19950404	US 1994-260040	19940615 <--
PRIORITY APPLN. INFO.:			US 1988-198408	A 19880525
			WO 1989-US2299	W 19890525
			US 1991-741930	B1 19910808

OTHER SOURCE(S): MARPAT 112:198797

GI



II

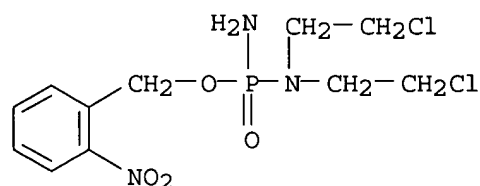
AB R1R2NP(O)(OCHRCHR3R4)N(CH2CH2Cl)2 [I; R = nitroaryl, nitroheteroaryl; R1, R2 = H, (halo-, OH-, or alkoxy-substituted) alkyl; R1R2N = morpholino; R3, R4 = H, electron-withdrawing group, (alkyl- or electron-withdrawing-group-substituted) alkyl], were prepared **Thus**, 2-O2NC6H4CH2OH in THF at 0° was treated with BuLi and the mixture was added to Cl2P(O)N(CH2CH2Cl)2 (preparation given) in THF. The mixture was stirred 1 h at 0°, NH3 was added, and stirring was continued for 1 h to give 26% II. I had LC99 of 123-350 µM against cyclophosphamide-sensitive L1210 cells. I are said to be free of the urinary bladder toxicity exhibited by cyclophosphamide and are effective against cyclophosphamide-resistant tumors.

IT 126893-93-4P 126893-94-5P 126893-95-6P
126893-96-7P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(preparation of, as neoplasm inhibitor)

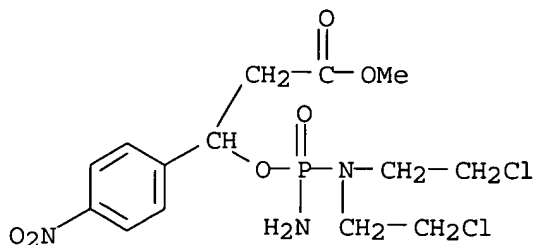
RN 126893-93-4 CAPLUS

CN Phosphorodiamidic acid, N,N-bis(2-chloroethyl)-, (2-nitrophenyl)methyl ester (9CI) (CA INDEX NAME)



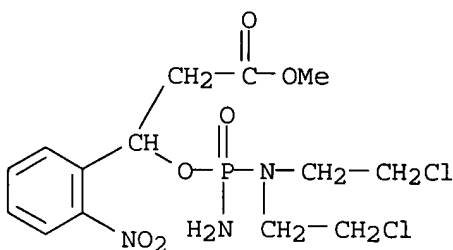
RN 126893-94-5 CAPLUS

CN Benzenepropanoic acid, β-[[amino[bis(2-chloroethyl)amino]phosphinyl]oxy]-4-nitro-, methyl ester (9CI) (CA INDEX NAME)



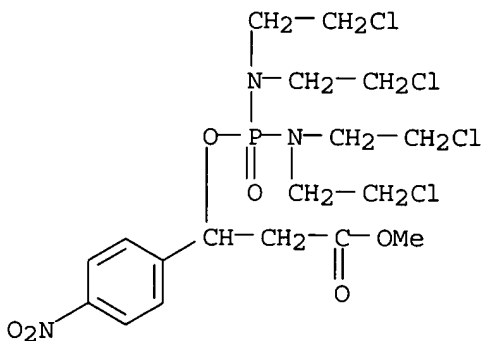
RN 126893-95-6 CAPLUS

CN Benzenepropanoic acid, β -[[amino[bis(2-chloroethyl)amino]phosphinyl]oxy]-2-nitro-, methyl ester (9CI) (CA INDEX NAME)



RN 126893-96-7 CAPLUS

CN Benzenepropanoic acid, β -[[bis[bis(2-chloroethyl)amino]phosphinyl]oxy]-4-nitro-, methyl ester (9CI) (CA INDEX NAME)



L17 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1985:61449 CAPLUS

DOCUMENT NUMBER: 102:61449

TITLE: Urease-inhibited urea based fertilizer compositions containing phosphorus compounds

INVENTOR(S): Swerdloff, Michael Dennis; Van der Puy, Michael; Kolc, Jaroslav Fitzgerald; Rogic, Milorad Mihailo; Anello, Louis Gene; Hendrickson, Larry Lee

PATENT ASSIGNEE(S): Allied Corp., USA

SOURCE: Eur. Pat. Appl., 49 pp.
CODEN: EPXXDW

05/31/2005 10725191.trn

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

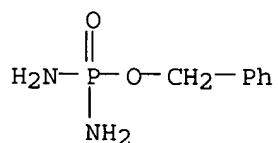
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 119494	A1	19840926	EP 1984-101739	19840220 <--
R: DE, FR, GB, IT, NL				
US 4517002	A	19850514	US 1983-475989	19830316 <--
US 4539037	A	19850903	US 1983-475990	19830316 <--
US 4540428	A	19850910	US 1983-475980	19830316 <--
AU 8425658	A1	19840920	AU 1984-25658	19840315 <--
AU 574667	B2	19880714		
CA 1236702	A1	19880517	CA 1984-449663	19840315 <--
PRIORITY APPLN. INFO.:			US 1983-475980	A 19830316
			US 1983-475989	A 19830316
			US 1983-475990	A 19830316

AB Improved fertilizer compns. comprise urea and(or) ≥ 1 urea precursor and a urease [9002-13-5]-inhibiting P compound of the formula (NR₁R₂)P:X(NR₃R₄)R₅ (X = O or S; R₁, R₂, R₃, and R₄ = H or C1-4 alkyl; R₅ = NR₆R₇, OR₈, or NR₉R₁₀; R₆, R₈ = alkyl, etc.; R₇ = e.g., heterocycle; R₉ = substituted alkyl; R₁₀ = R₉, H, cycloalkenyl, etc.). **Thus**, N-methyl-N-(4-nitrophenyl)phosphoramidic dichloride [94511-60-1] was prepared by heating p-nitro-N-methylaniline [100-15-2] and POCl₃ and was then reacted with NH₃ in CH₂Cl₂. The N-methyl-N-(4-nitrophenyl)phosphoric triamide [94511-45-2] obtained by filtration was an excellent urease inhibitor even when soil temps. were 35° for 12 days, whereas the known inhibitor Ph phosphorodiamidate allowed complete urea hydrolysis after only 6 days at 35°.

IT **86197-91-3P**
RL: AGR (Agricultural use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses) (urease inhibitor, preparation and efficacy of)

RN 86197-91-3 CAPLUS

CN Phosphorodiamidic acid, phenylmethyl ester (9CI) (CA INDEX NAME)



L17 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1978:508644 CAPLUS
DOCUMENT NUMBER: 89:108644
TITLE: Phosphoroamidates
INVENTOR(S): Morgan, Albert W.; Schumacher, Ignatius; Vanderlinde, William
PATENT ASSIGNEE(S): Monsanto Co., USA
SOURCE: U.S., 11 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5

PATENT INFORMATION:

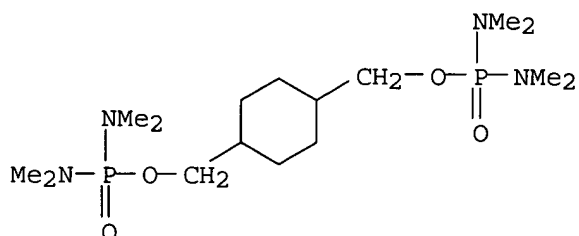
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4086302	A	19780425	US 1976-727913	19760929 <--
US 4144394	A	19790313	US 1977-862080	19771219 <--
PRIORITY APPLN. INFO.:			US 1972-276810	A2 19720731
			US 1974-459257	A3 19740408
			US 1975-599569	A2 19750728

AB ZOP(Z1) (NRR1)2 and Z[OP(Z1) (NRR1)2]n [Z = residue of a hydroxyl-containing moiety; Z1 = O, S; R,R1 = individual same or different alkyl, cycloalkyl, aryl; or NRR1 = 5 or 6 membered O, S, or N containing heterocyclyl; n = 2 or greater and is equal to the number of OH groups in the original hydroxyl-containing moiety], useful as flame retardants for natural and synthetic polymeric materials, were prepared by treating phosphorohalidates with amines. **Thus**, bisphenol A was refluxed with POCl3 in the presence of pyridine and the resultant bisphosphorodichloridate was treated with Me2NH in the presence of aqueous NaOH to give [p-[(Me2N)2P(O)O]C6H4]2CMe2 (I). In a flame retarding test on an epoxy resin containing 5 parts I/100 parts resin the volatility loss was 0.01%, tensile strength 3200 psi, and O index 22.0 (0 %).

IT **51963-69-0P**
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)

RN 51963-69-0 CAPLUS

CN Phosphorodiamidic acid, tetramethyl-, 1,4-cyclohexanediylbis(methylene) ester (9CI) (CA INDEX NAME)



L17 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1977:425818 CAPLUS

DOCUMENT NUMBER: 87:25818

TITLE: Improved hydraulic liquids

INVENTOR(S): Heber, John F.

PATENT ASSIGNEE(S): Monsanto Co., USA

SOURCE: Ger. Offen., 34 pp.
 CODEN: GWXXBX

DOCUMENT TYPE: **Patent**

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2625878	A1	19761223	DE 1976-2625878	19760609 <--
US 4056480	A	19771101	US 1975-585636	19750610 <--
NL 7606145	A	19761214	NL 1976-6145	19760608 <--
JP 51149884	A2	19761223	JP 1976-66639	19760609 <--

05/31/2005 10725191.trn

FR 2314243	A1	19770107	FR 1976-17415	19760609 <--
GB 1532904	A	19781122	GB 1976-23851	19760609 <--
AU 507315	B2	19800214	AU 1976-14748	19760609 <--
PRIORITY APPLN. INFO.:			US 1975-585636	A 19750610

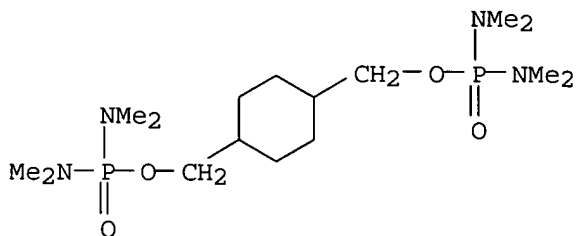
AB Diphosphate esters and amidates [R[O2PXY]2, where R = oxydiethylene, 1,4-cyclohexylenedimethylene, or isopropylidenedi-1,4-cyclohexylene; and X,Y = OBU, NMe2, 2-ethylhexyloxy, or cyclohexyloxy] are prepared for use as hydraulic fluids. **Thus**, to 307 g POCl3 at 20°/500 mm was added 106 g (HOCH2CH2)2O over 4 h with reduction in pressure to 80 mm, giving 333.5 g (Cl2PO2CH2CH2)2O (I) [53461-81-7], which was added over 1-2 h to 741.2 g BuOH at 20° to provide 355 g diethylene glycol bis(dibutyl phosphate) [62955-03-7]. Similar preps. were given for 12 other esters, amidates, and acid chlorides.

IT 51963-69-0P

RL: PREP (Preparation)
(manufacture of, as hydraulic fluids)

RN 51963-69-0 CAPLUS

CN Phosphorodiamidic acid, tetramethyl-, 1,4-cyclohexanediylbis(methylene) ester (9CI) (CA INDEX NAME)



=> log y

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
76.37	578.86

FULL ESTIMATED COST

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE	TOTAL
ENTRY	SESSION
-9.49	-10.95

CA SUBSCRIBER PRICE

STN INTERNATIONAL LOGOFF AT 14:32:16 ON 31 MAY 2005